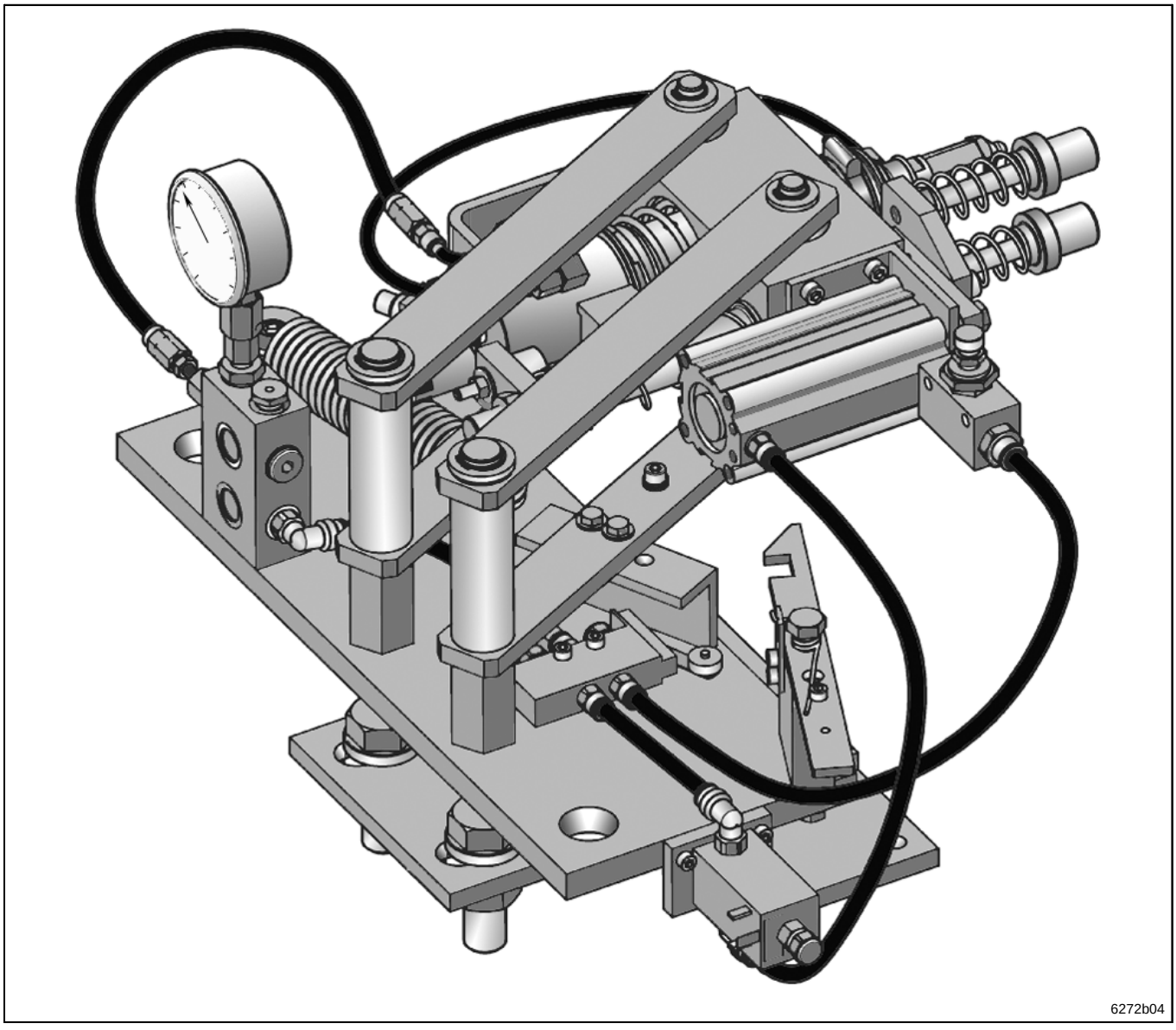
6.3A-18003-A04

COBRA 1X

Lubrication Device for Moving Lubrication Points



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Always keep this User Manual ready to hand on the site where the COBRA 1X is in operation!

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Introduction

Explanation of Symbols Used

The following description standards are used in this manual:

Safety Instructions

Structure of safety instructions:

- Pictogram
- Signal word
- Danger text
  - Danger note
  - How to avoid danger

The following pictograms are used in this manual and are combined with the corresponding signal words:

1013A94	4273a00	6001a02
- ATTENTION	**- ATTENTION**	**- NOTE**
- CAUTION	**- CAUTION**	**- IMPORTANT**
- WARNING	**- WARNING**	

The signal words give the seriousness of danger if the following text is not observed:

ATTENTION	refers to faults or damages on machines.
CAUTION	refers to bad damages and possible injuries.
WARNING	refers to possible dangerous injuries.
NOTE	refers to improvements in handling of systems.
IMPORTANT	refers to considerable disadvantages in handling of systems.

Example:

1013A94

ATTENTION!

When making use of other than the original spare parts, serious damage may affect your device.

Therefore, for the operation of your device always use original spare parts made by Lincoln GmbH & Co. KG.

Furthermore, you will find the following text symbols in this manual:

- Listing of applicable statements
  - Subpoint of applicable statements

1. Determination of the number or sequence of contents

➲ Procedural instruction

User's Responsibility

To ensure the safe operation of the unit, the user is responsible for the following:

1. The pump / system shall be operated only for the intended use (see next chapter "Safety Instructions") and its design shall neither be modified nor transformed.
2. The pump / system shall be operated only if it is in a proper functioning condition and if it is operated in accordance with the maintenance requirements.
3. The operating personnel must be familiar with this Owner Manual and the safety instructions mentioned within and observe these carefully.

The correct installation and connection of tubes and hoses, if not specified by Lincoln GmbH & Co. KG, is the user's responsibility. Lincoln GmbH & Co. KG will gladly assist you with any questions pertaining to the installation.

Environmental Protection

Waste (e.g. used oil, detergents, lubricants) must be disposed of in accordance with relevant environmental regulations.

Service

The personnel responsible for the handling of the pump / system must be suitably qualified. If required, Lincoln GmbH & Co. KG offers you full service in the form of advice, on-site installation assistance, training, etc. We will be pleased to inform you about our possibilities to support you purposefully. In the event of inquiries pertaining to maintenance, repairs and spare parts, we require model specific data to enable us to clearly identify the components of your pump / system. Therefore, always indicate the part, model and series number of your pump / system.

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Safety Instructions

Appropriate Use

The COBRA 1X lubrication device is exclusively designed for the lubrication of moving lubrication points on rollers and chain conveyors.
The appropriate use also refers to:

- professional installation and repair works
- regular visual controls and maintenance works (depending on customized operation intervals)
- disposal of used or contaminated lubricants as well as of all parts that were in touch with lubricant according to the legal regulations pertaining to environmental protection
- safe operation by observing the technical data

Applicable Lubricants

The lubrication device COBRA 1X is able to deliver greases up to NLGI grade 2 or lubricating oils of at least 40 mm²/s (cST) at 40 °C.

6001a02

IMPORTANT

Make sure that the applied oils or greases do not change their characteristics essentially due to age, pressure or temperature.

Misuse

Any use of the COBRA 1X that is not expressly stated as appropriate in this User Manual will be regarded as misuse. If the COBRA 1X is used or operated in a different manner other than the specified, any claim for warranty or liability will be null and void.

Exclusion of Liability

6001a02

IMPORTANT

If personal injury or material damage occurs as a result of inappropriate operation, e.g. if the safety instructions are ignored, or resulting from an incorrect installation of the COBRA 1X, no claims or legal actions may be taken against Lincoln GmbH & Co. KG.

Regulations for Prevention of Accidents

To prevent accidents, observe all city, state and federal safety regulations of the country in which the product will be used.

Disposal

Dispose of used or contaminated lubricants as well as of parts that were in touch with lubricant according to the legal regulations pertaining to environmental protection.

General Safety Instructions

- Lincoln lubrication devices COBRA 1X for moving lubrication points are designed state-of-the-art.
- Incorrect use may result in bearing damage caused by poor or excessive lubrication.
- Unauthorized modification and alteration to the machine are only allowed with the manufacturer's or his contract partner's consent.
- Use original Lincoln spare parts only or parts authorized by Lincoln.
- Warning directly fixed to the machine must always be observed and must be kept in fully legible condition.

Installation, Maintenance and Repair

- The manufacturer recommends establishing a safety zone around the operation area of the COBRA 1X.
  Otherwise, the owner must secure the operation area with protective devices against inadmissible access.
- Maintenance, inspection, repair or installation work must always be performed by authorized and instructed personnel who are familiar with the lubrication device.
- On no account may work be carried out while the device is in operation, but only in its off-position (see page 15).
  In the case of exceptions:

1371a94

CAUTION!

Risk of Crushing and Banging!
Make sure to observe all moving components when performing any work on the COBRA 1X during operation.

- Fix the COBRA 1X at a suitable place (see pages 10 ff, chapter "Assembly and Start-up").
- After completion of the assembly, maintenance or repair work, reinstall all protective devices again.

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Safety Instructions, continuation

Operation

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CAUTION!

Risk of Crushing or Banging!
Always consider that the COBRA 1X may move together with the conveyor belt when ready for operation.

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IMPORTANT

During operation the spring characteristic of the COBRA 1X protects it against damage. Therefore, the lubrication device must in no case be supported additionally.

Operation is allowed only under the following preconditions:

- observe the maintenance instructions (see page 22)
- technically proper condition of the lubrication device
- all protective devices fixed (see page 8, chapter “Safety functions“ and page 9, chapter “Positioning”)
- use recommended or comparable lubricants (see page 5, chapter “Applicable lubricants”)
- follow the prescribed moving direction of the chain
- operation only by authorized and instructed personnel under observation of the instructions given in this User Manual
- within a complete system only, the commissioning of which had been allowed under consideration of the respective directives

Description

COBRA 1X

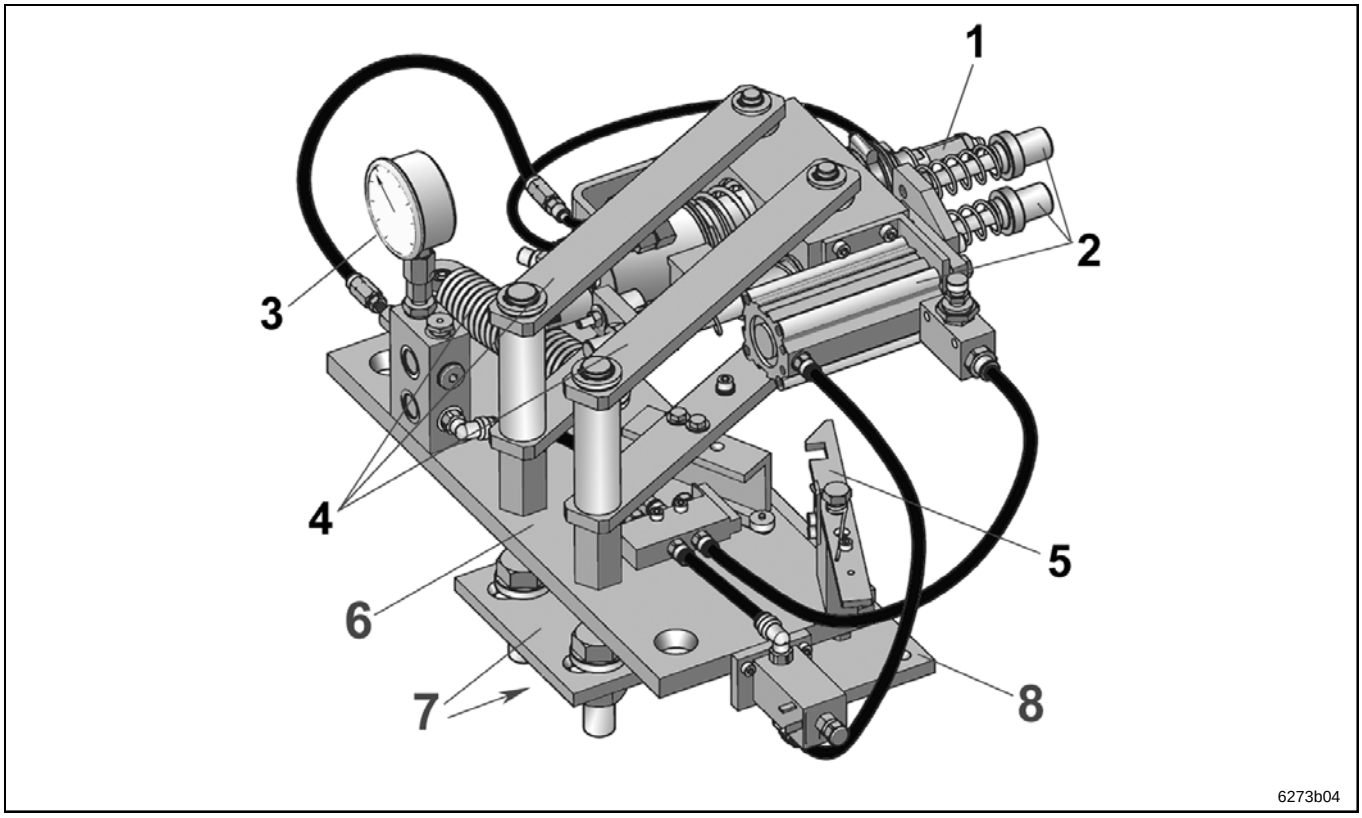


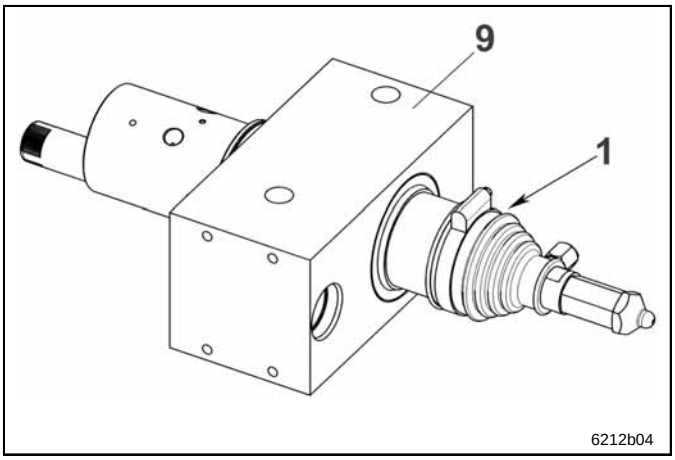
Fig. 1 COBRA 1X

1 -	Lubrication head (see Fig. 2)	4 -	Slewing crank with pull-back spring	7 -	Slewing device
2 -	Pick-up arm with air cylinder	5 -	Safety notch	8 -	Mounting plate
3 -	Pressure gauge, lubricant pressure	6 -	Base plate		

Subject to modifications

Description, continuation

COBRA 1X, continuation



1 - Lubrication head with flush coupler (alternatively nozzle for hydraulic lubrication fitting)
9 - Pick-up arm and lubrication head bearing

Fig. 2 Lubrication head

General

- The COBRA 1X is a mechanically and pneumatically operated lubrication device for the automatic lubrication of moving rollers or swivel pins on transport chains.
- Applications:
  - Power & Free belts
  - Plate conveyors (mining industry)
  - Coil conveyor belts (metallurgical industry),
  - Crusher discharging belts and clinker transport (cement industry)
  - Circular conveyors, vehicle transport belts (automobile industry)
  - Beet transport belts (sugar industry).
- On the transport chain a lubrication system normally consists of 2 COBRA lubrication devices, one in left-hand version and one in right-hand version.
- The COBRA 1X allows for the metered application of lubricants into linearly moving lubrication points, even if the roller distances vary.
- The disconnection is effected via a 3-way air valve. The valve can be activated as follows:
  - mechanically (standard), manually
  - electrically (option), remote disconnection possible
  - pneumatically (option), remote disconnection possible

Features

- compact design
- high rigidness
- reliable functionality
- universally applicable on diverse roller or chain belts
- adaptation of the required injecting pressure into the roller or pin bearing of the transport chain

- During the operation of the COBRA 1X variations in the running speed of the transport chain are admissible to a limited extent. Admissible variations in the running speed depend on the following factors:
  - average speed
  - chain pitch
  - diameter of the chain rollers
- The COBRA 1X is factory-adapted to the individual design of the transport chain. Therefore, the geometry of the chain must not change exceeding the admissible tolerances. It is determined by the following factors:
  - dimensions of the chain rollers
  - lubrication points on the transport chain
- The metering quantity per stroke and lubrication point (0.2 to 2.0 cm^3/ stroke) can be adjusted by means of the **measuring valve** (see pos. 9).
- As a protection against damages, the COBRA 1X has got a **safety notch** (see fig. 1, pos. 5) as well as a **slewing notch** (see fig. 1, pos. 7 and 8).

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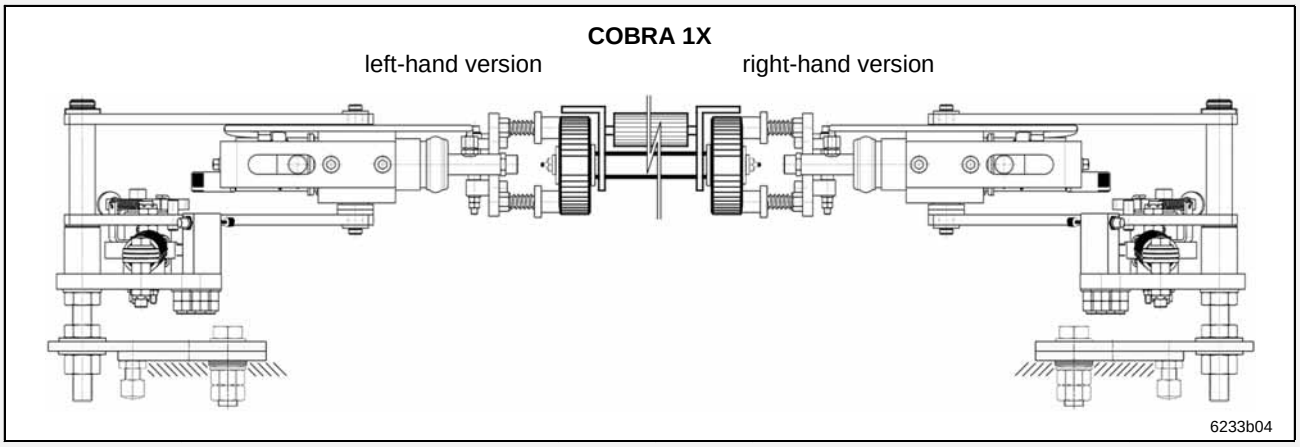
Description, continuation

Interfaces to the equipment provided by the user



Mechanics
- working area
- safety zone
- holding construction

Lubricant supply
- pump, pump pressure:
  - 120 to 240 bar for grease
  - 40 to 80 bar for oil

Pneumatics
- maintenance unit
- air pressure (5.5 to 6 bar)
- shut-off valve

Controlling electronics
- optionally via 3/2 way valve

Fig. 3 Schematic of a lubrication system, view in direction of dispense

Safety Functions

Slewing notch (see page 6, fig. 1, pos. 7)

Preconditions
- In case of unintentional pick-up of the pick-up rollers (see page 10, fig. 4, pos. 2.1) by the transport chain
- In case of a reverse movement of the transport chain
- In case of a malfunction of the 5/2 way valve (see page 13, fig. 7, pos. 13)

Function
- The complete COBRA 1X is slewed out of the catchment area of the transport chain.
- As an option, this slewed position can be detected by a proximity switch in order to provide an external control with a signal.

Safety notch (see page 6, fig. 1, pos. 5)

Preconditions
- In case the speed of the transport chain is too high
- In case the actuating angle (page 13, fig. 7, pos. 4.3) has been set wrongly.

Function
- The safety notch engages into the slewed lubrication head pick-up device and prevents it from slewing back into the catchment area of the transport chain.
- The 5/2-way valve (page 13, fig. 7, pos. 13) is thereby actuated and drives the lubrication head pick-up device (pos. 1 and 2) out of the catchment area of the transport chain.

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IMPORTANT

Whenever one of the two safety functions has been applied, the COBRA 1X is out of operation.

➲ *Eliminate the cause for the activation of the safety function.*

➲ *Bring the COBRA 1X back into the off position (see page 15).*

➲ *Put the COBRA 1X into operation again (see page 14, chapter “Re-Start”).*

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Planning and Layout

Layout of the holding construction

- ➲ Prepare a holding construction with sufficient stability for fixing four screws M10 (see page 11, fig. 5: hole pitches 270 x 70 mm), where the mounting plate can be attached to (page 6, fig. 1, pos. 8).
- ➲ The holding construction must provide a horizontal and even rest for the mounting plate.
- ➲ Keep a horizontal distance of 245 ± 5 mm (page 11, fig. 5) from the lubrication fittings of the transport chain to the hole pattern of the mounting plate.
- ➲ During the vertical positioning, consider the different distances between the fixing versions from the top and those from the bottom (see pages 26 and 27, fig. 23 and 24).

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NOTE

Customer services of Lincoln GmbH & Co. KG are pleased to assist you in the planning and layout of your automated lubrication system (address on the rear side of this User Manual).

Positioning

To determine the position of the COBRA 1X consider the following factors:

Positions

- Position with low degree of contamination
- Position with high degree of contamination:
  Install dust protection observing the maximum slewing range (dimensions, see pages 26 and 27, fig. 23 and 24).

Lubricant pump

- Positioning of the lubricant pump:
  As centrically as possible in order to achieve equal line lengths to the lubrication devices.

Safety zone

- Establishment of a safety zone (dimensions, see pages 26 and 27, fig. 23 and 24).

Lubrication devices COBRA 1X

- Opposite positioning of two synchronized operating lubrication devices (example, see fig. 3) in order to avoid a horizontal excursion of the conveyor belt.
- Positioning of the lubrication devices:
  Choose a running section of the transport belt where the smallest horizontal (max. ±5 mm) and vertical variations (max. ±1.5 mm) are expected.
  If the variations of the transport belt are too big, the transport rollers must be guided (see page 10, chapter “Guidance of the conveyor belt“).

Lubricant Supply

Synchronization

- Each COBRA 1X receives a separate feed line from the pump.
- The lubricant supply to two COBRA 1X lubrication devices of a lubrication station is effected by dividing the feed line into two supply lines of possibly equal lengths.

Pump

The output of the pump depends on the following factors:

- the number of lubrication devices
- the lubricant need per operating stroke
- the stroke frequency:

$$stroke \quad frequency = \frac{chain \quad speed}{chain \quad pitch}$$

Chain pitch: distance between two lubrication points on a transport chain

Feed Lines

The layout of the lubricant lines to provide the lubrication devices with lubricant depends on:

- the distance between the pump and the lubrication station
- the viscosity of the lubricant
- the required output
- the minimum temperature expectation

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IMPORTANT

As the lubrication devices are to operate simultaneously, there may occur a strong short-term increase of lubricant consumption.
Therefore, install a flexible hydraulic hose on the lubricant inlet of each COBRA 1X. Thanks to the flexibility of the hose walls, an increased lubricant consumption can be covered temporarily (accumulator effect).

NOTE

If mineral oils or fluid greases (NLGI 000 and 00) are used, differences in the line lengths are insignificant.

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Assembly and Start-up

Safety

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CAUTION!

Risk of Crushing or Banging!
Carry out any preparation and assembly works only with the transport belt switched off.

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During the test run with disassembled protective devices, make sure to particularly observe all automated moving procedures in the catchment and slewing area of the COBRA 1X.

Attach the respective protective devices upon completion of assembly and start-up.

Preparation

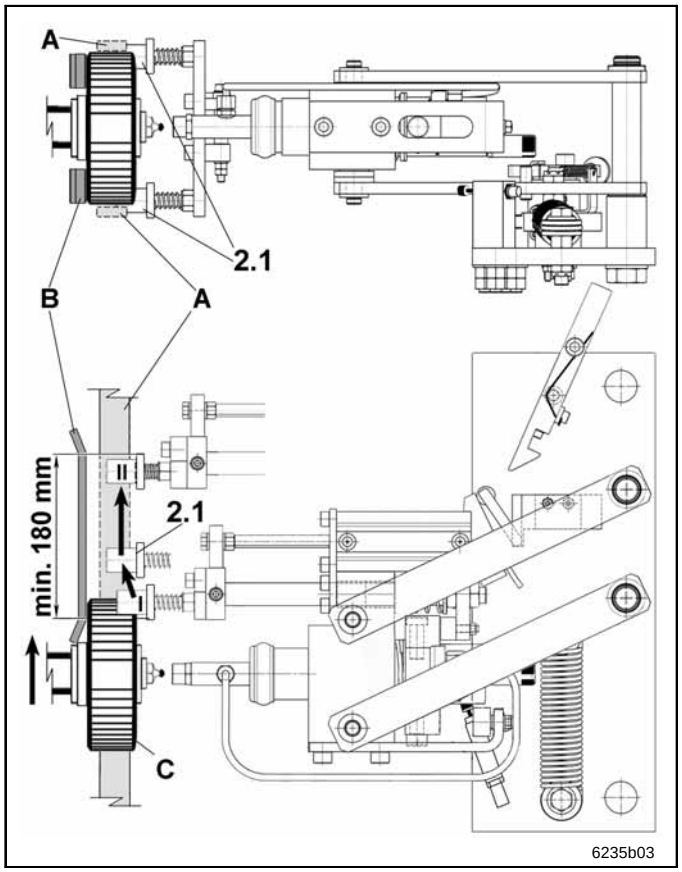

Fig. 4 Guidance of the conveyor belt

2.1 - Pick-up rollers
I - Pick-up rollers, waiting position
II - Pick-up rollers, backstroke position
A - Vertical guidance
B - Horizontal guidance
C - Chain rollers of the transport chain

Guidance of the conveyor belt

Vertical guidance (Pos. A):

The COBRA 1X can compensate a vertical excursion of the chain rollers (pos. C) of ±1.5 mm.

➲ In case of bigger excursions, mount vertical guidances (pos. A) in the catchment area of the pick-up rollers (pos. 2.1).

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NOTE

The vertical guidances (pos. A) must not limit the moving process of the pick-up rollers(pos. 2.1) during the pick-up and lubrication phase (see page 17).

The distance between the vertical guidances (pos. A) must be big enough so that the chain rollers (pos. C) will not stick between them during their passage.

➲ If necessary, spare the vertical guidance (pos. A) of the conveyor chain in the catchment area (min. 180 mm) of the pick-up rollers (pos. 2.1).

Horizontal guidance (pos. B):

The COBRA 1X can compensate a horizontal excursion of the chain rollers (pos. C) of ±5 mm.

➲ In case of bigger excursions, mount horizontal guidances (pos. B) in the catchment area of the pick-up rollers (pos. 2.1).

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CAUTION!

If there are no guidances for the chain rollers, some rollers may suffer poor lubrication and the lubrication head may be damaged.

Subject to modifications

Assembly and Start-up, continuation

Assembly, continuation

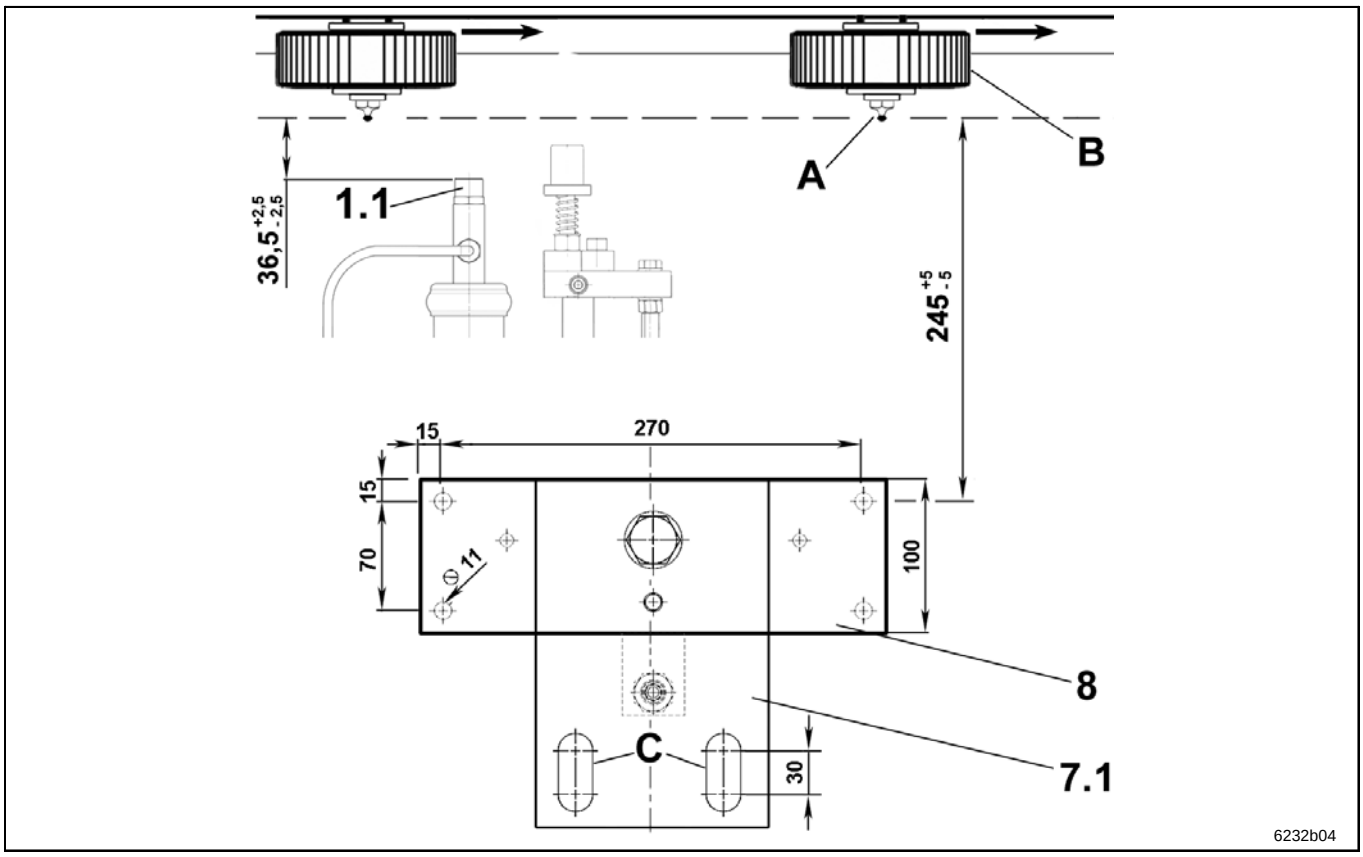

Fig. 5 Assembly of the COBRA 1X

1.1 - Lubrication head, nozzle for hydraulic lube fitting (off position)
A - Lubrication fitting of the transport chain
7.1 - Slewing plate
B - Chain roller
8 - Mounting plate
C - Oblong holes of the slewing plate

1. Preparation for adjustment

- Loosen the fastening nuts (see page 28, fig. 25, pos. 4.5) on the threaded rods M 20 (pos. 4.4).
- Separate the mounting and slewing plate (fig. 5, pos. 7.1 and 8) from the COBRA 1X.
- Fix the mounting plate (pos. 8) with four fastening screws M10 to the holding construction (see page 9, chapter “Layout of the holding construction”).
- Make sure that for execution of item **1.** to **3.** the COBRA 1X is in off position (see page 15).
- Make sure that the mounting plate is supported horizontally and evenly by the holding construction.
- Tighten the four fastening screws M10 upon the positioning of the mounting plate: M10 … 35 Nm

2. Vertical adjustment

- Put the threaded rod M20 (see page 28, pos. 4.4) of the COBRA 1X back into the oblong holes (pos. C) of the slewing plate (pos. 7.1).
- Tighten the fastening screws M20 (pos. 4.5) slightly.
- Place the nozzle coupler (pos. 1.1) respectively the axis of the lubrication head (pos. 1) horizontally to the height of the lubrication fitting (pos. A). To do so, use the thread pitch of the threaded rods M20 (pos. 4.4) in combination with the fastening nuts M20 (pos. 4.5).
- Make sure that the axis of the lubrication head is parallel to and at the same height as the axis of the lubrication fitting. This is valid for the complete moving area of the COBRA 1X.

3. Horizontal adjustment

- Move the threaded rods M20 (see page 28, pos. 4.4) along the oblong holes (pos. C) until you achieve a distance of $36{,}5^{\pm 2{,}5}$ mm between the nozzle coupler and the lubrication fitting (see fig. 5). The distance $36{,}5^{\pm 2{,}5}$ mm is the way that has to be done between the nozzle coupler in off position and the pressure contact to the lubrication fitting.

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IMPORTANT

Even in case of the maximum horizontal roller variation, the distance must not be more than 39 mm.

- Tighten the fastening nuts after completion of the positioning: M20 … 290 Nm
- Check all adjustments after tightening all screws.
- If necessary, carry out the corrections.

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Assembly and Start-up, continuation

Assembly, continuation

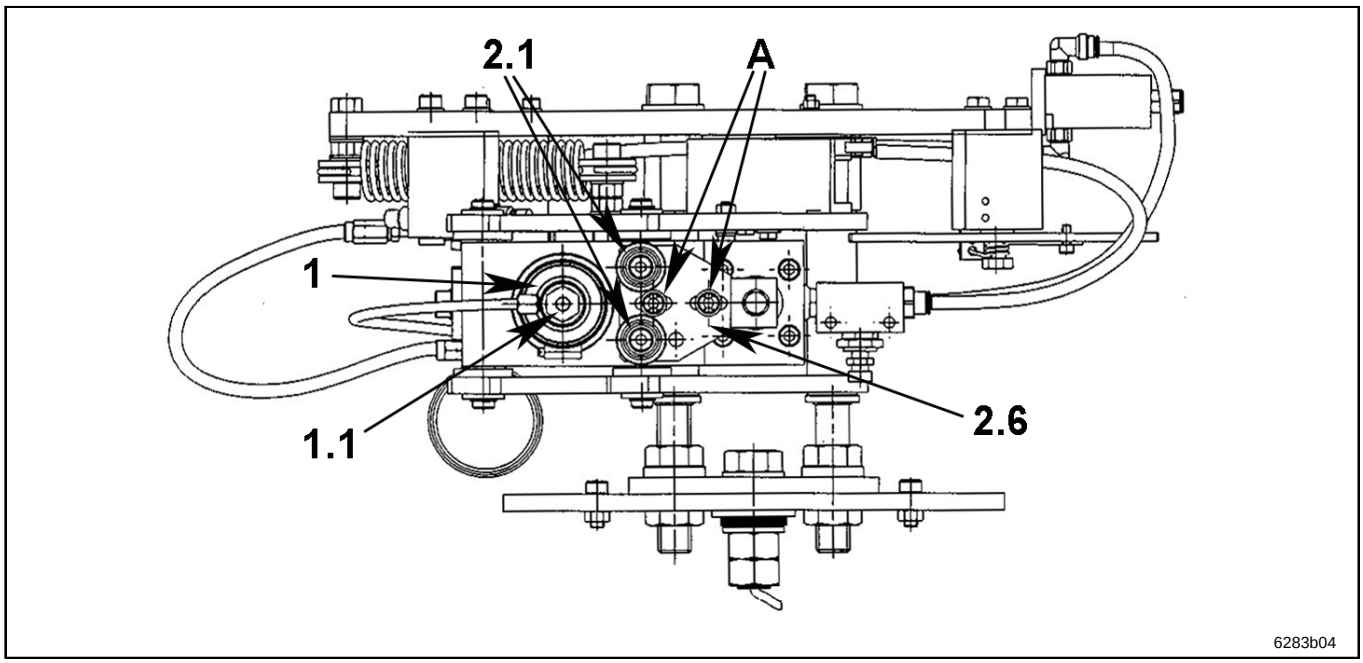
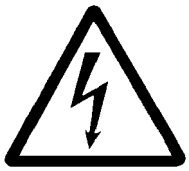


Fig. 6 Horizontal fine adjustment

4. Horizontal fine adjustment

- ➲ Provide the air supply for the COBRA 1X.
- ➲ If necessary, carry out the installation for electrically operated 3/2-way valves.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CAUTION!

Before connecting the lubrication devices make sure to disconnect the system from the power supply.

Only qualified electricians should proceed with assembly and installation of electrical equipment. Observe all pertinent safety regulations and standards.

- ➲ Make sure that the COBRA 1X is in waiting position (see page 17).

Adjust distance nozzle coupler – pick-up rollers

- ➲ For the fine adjustment loosen the fastening screws (pos. A) on the oblong holes of the pick-up arm (see pos. 2.6).
- ➲ Move the transport chain to that extent that one chain roller stops at the pick-up rollers (pos. 2.1, see page 18, fig. 14).
- ➲ Variegate the distance between the pick-up rollers (pos. 2.1) and the lubrication head (pos. 1) along the oblong holes (pos. A).
- ➲ Position the nozzle coupler (pos. 1.1) exactly to a lubrication point whereby the pick-up rollers (pos. 2.1) must in no case loose the contact to the chain roller.
- ➲ Retighten the fastening screws (pos. A) after completion of the positioning: M 10 … 35 Nm
- ➲ Check all adjustments after tightening all screws.

Adjust pick-up stroke

- In the operating status “Waiting position“ the pick-up rollers are to move 7 to 15 mm into the catchment area of the chain rollers (feeding depth 10^{+5}_{-3} mm, see page 26 and 27, fig. 23 and 24).

6001a02

IMPORTANT

Observe the minimum measure of 7 mm for all horizontal chain roller and transport chain variations.

The measure of 15 mm may be exceeded under the following conditions only:

- *if the pick-up rollers (pos. 2.1) do not run against stationary walls*
- *if the pick-up rollers (pos. 2.1) do not push the chain roller off the nozzle coupler (pos. 1.1).*

- ➲ Loosen the nuts (see fig. 7, pos. C) on the pick-up guide rod (pos. 2.4).
- ➲ Move the pick-up stop (pos. 2.5) to the end of the pick-up guide rod (pos. 2.4) in order to feed the pick-up rollers into the catchment area of the chain rollers. Otherwise, move the pick-up stop further on the pick-up guide rod.

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NOTE

It is possible to move the stop up to 15 mm on the guide rod. This corresponds to a pick-up stroke of 60 to 75 mm.

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Assembly and Start-up, continuation

Assembly, continuation

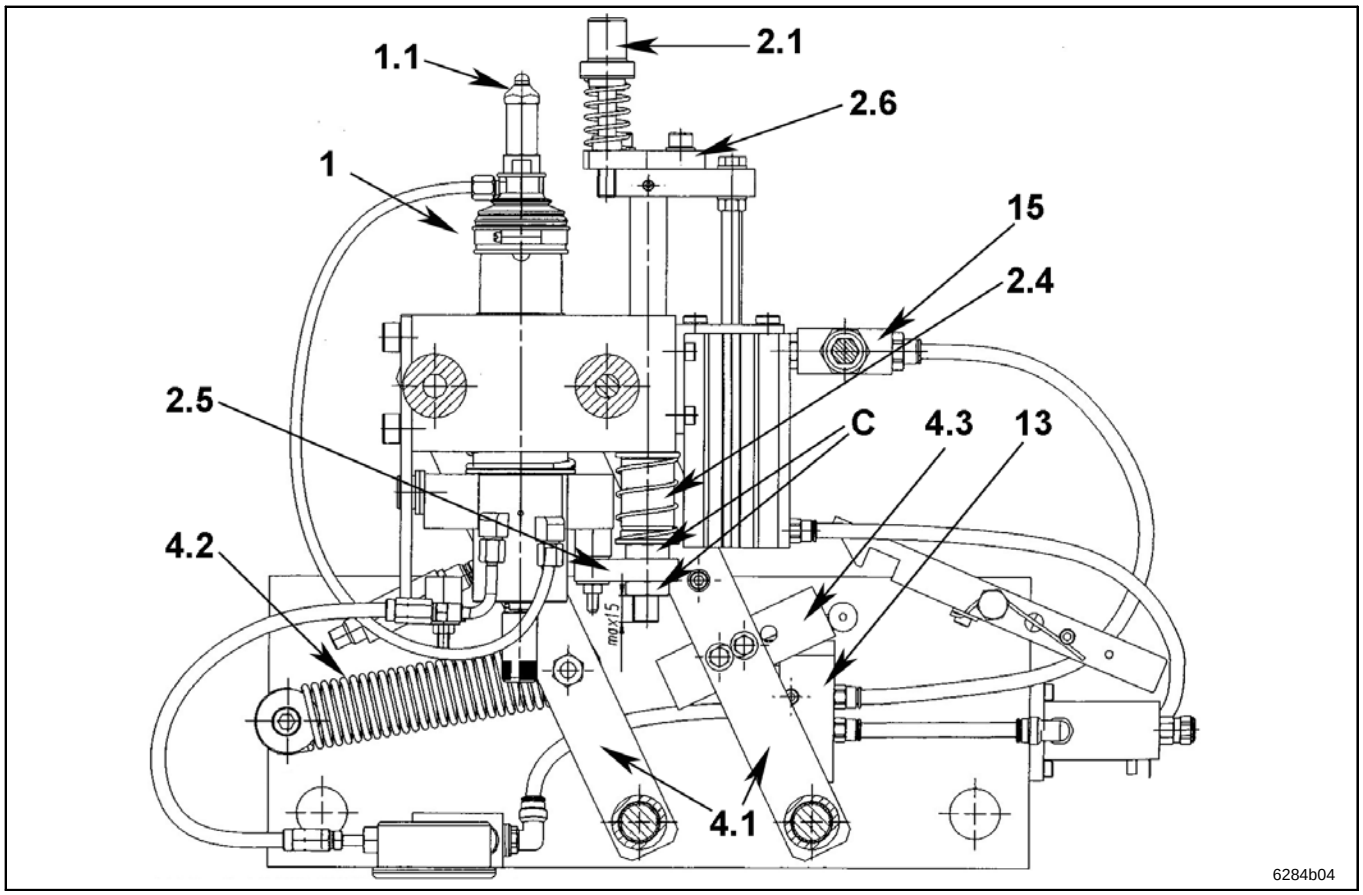

Fig. 7 Adjustment of swiveling distance and reverse travel speed

5. Adjustment of swiveling distance

- The actuating angle (pos. 4.3) stops the movement of the slewing cranks (pos. 4.1) at the end of the lubrication process. It actuates the 5/2-way valve (pos. 13).

➲ Loosen the two screws (M 6) of the actuating angle (pos. 4.3).

Modification of the swiveling distance

- Shortening: (**reduce angle α**) to increase the operating frequency and at the same time reduce the lubrication time
- Elongation: (**enlarge angle α**) to prolong the lubrication time

➲ Move/ turn the actuating angle as follows:

		Swiveling distance	
		Shortening	**Elongation**
COBRA 1X	**Right-hand version**	clockwise	counterclockwise
	Left-hand version	counterclockwise	clockwise

6. Adjustment of reverse travel speed

➲ Modify the reverse travel speed during the pull-back movement (see page 18) by screwing the throttle screw on the check valve in or out (pos. 15).

Reduce reverse travel speed

- by screwing-in the throttle screw
- during low chain speed
- to avoid the contact of the pick-up rollers (pos. 2.1) with an already lubricated chain roller during the pull-back movement
- to reduce the shock load at the end of the pull-back movement

Increase reverse travel speed

- by screwing-out the throttle screw
- to increase the lubrication frequency

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Assembly and Start-up, continuation

Assembly, continuation

7. Adjustment of output

- Make sure that the COBRA 1X is in off position (see page 15).

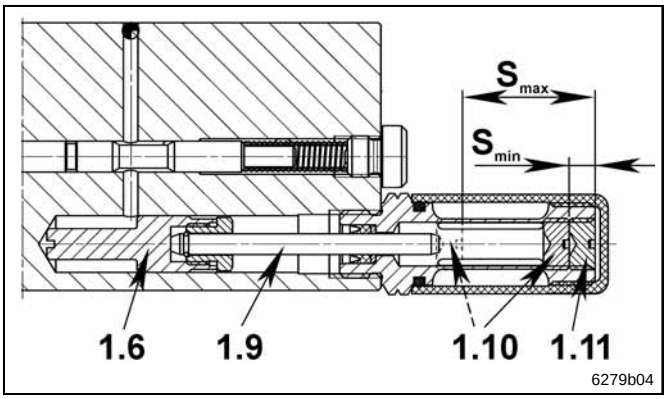

Fig. 8 Metering via lubrication head

Metering to zero
(broken-line representation of the metering screw pos. 1.10)

➲ Tighten the metering screw (pos. 1.10) up to the mechanical stop of the metering ram (pos. 1.9) and of the supply piston (pos. 1.6).

Adjustment

➲ Turn the thread revolutions[2)] indicated in the following chart back in order to adjust the corresponding output (with the maximum output being **S** = 5.5 mm[1)]).

➲ Keep to the recommended range of adjustment (**S** ≤ 23.5 mm), as otherwise the inaccuracy of the output per stroke increases (minimum output 0.2 cm³/ stroke).

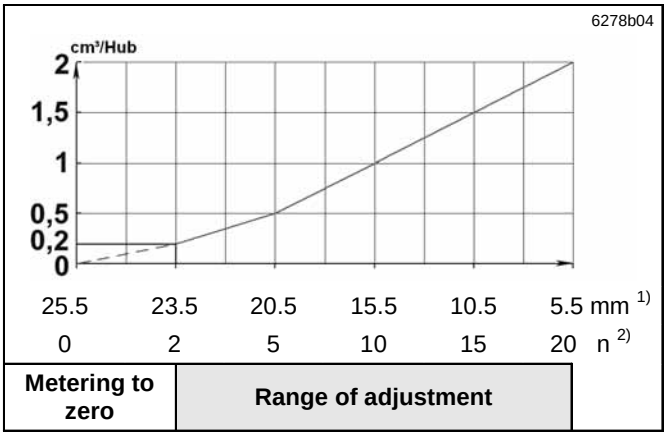

Fig. 9 Output diagram

1) Depth gauge **S** in mm
2) Number of thread revolutions (n) of the metering screw (pos.1.10) as of the metering to zero

➲ Fix the adjustment of the metering screw (pos. 1.10) by means of a fastening screw (pos. 1.11).

➲ Observe the note regarding the lubrication procedure (see page 21).

8. Adjustment of proximity switch

➲ Make sure that the COBRA 1X is in off position (see page 15).

- The slewing plate is fastened to the mounting plate by screws and locked on the pressure piece (see page 28, pos. 7.2).

➲ Screw the proximity switch (pos. 7.3) into the threaded bore M12 x 1 of the mounting plate.
The screwing depth is 0.5 mm less than the thickness of the mounting plate (10 mm). Exceeding this screwing depth will destroy the proximity switch during the slewing function.

Start-up

➲ Remove lines already connected.

➲ Clean, fill and mount the lines.

➲ Set the lubricant pressure:
- for grease from 120 to 240 bar
- for oil from 40 to 80 bar

➲ Check the adjustments of chapters 1, 2 and 3 (see page 11):
- when the transport chain is standing
- when the 3/2-way valve is not actuated (see page 15, pos. 14)

➲ Check the adjustments of chapter 4 (see page 12):
- when the air supply is connected
- when the 3/2-way valve is actuated (pos. 14)
- when having contact between the chain rollers and the pick-up rollers

➲ Check the adjustments of chapters 5 and 6 (see page 13):
- during the moving procedure of the COBRA 1X
- if possible when the lubricant supply is shut-off
- when the air supply is connected
- when the 3/2-way valve is actuated (pos. 14)
- applying the planned transport direction and speed of the running transport chain.

➲ Check the adjustment of the output according to chapter 7 in off position.

➲ Activate the lubricant supply
- Switch the pump on
- Open the lubricant line

➲ Check the lubrication procedure several times with the COBRA 1X in operation (see page 22, chapter “Functional test“).

➲ Adapt the pump pressure to the required lubricant injecting pressure into the roller respectively bold bearings of the transport chain.

Reconnection

➲ If necessary, eliminate the cause for the activation of a safety function (see page 8) before the reconnection. Also consider the chapter “Troubleshooting“ (see pages 22 ff).

➲ Put the COBRA 1X into the operating status “Off position” first, then into “Waiting position” (see pages 15 and 16).

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Operating Method

Pneumatics and Mechanics

Off position

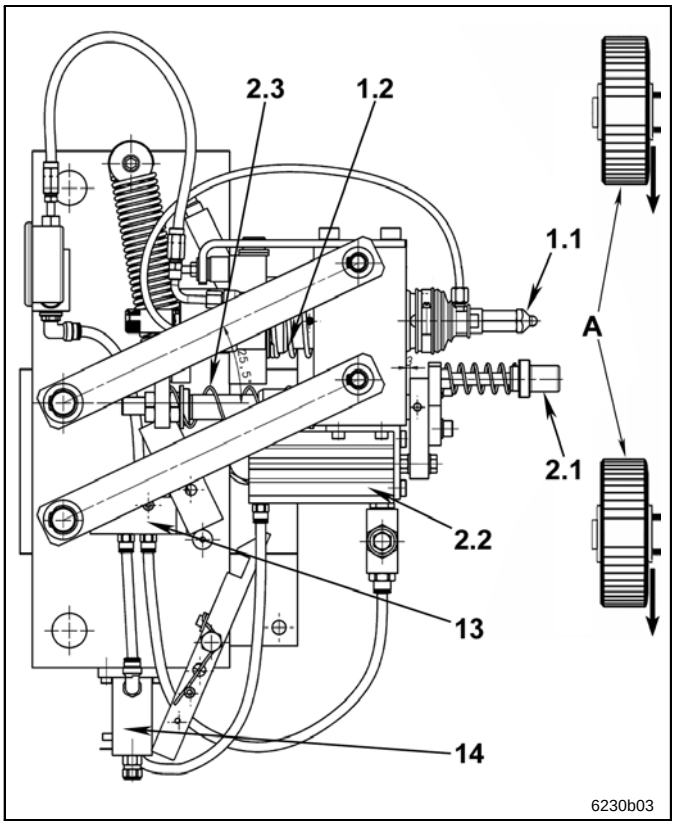

Fig. 10 COBRA 1X in off position

In the off position the COBRA 1X is out of operation.

Characteristics of the off position

- The valves (pos. 13 and 14) are inoperative (valve position, see fig. 11). The compression springs (pos. 1.2 and 2.3) maintain the lubrication head (pos. 1) and the pick-up arm (pos. 2) in off position.
- The pick-up rollers (pos. 2.1) are positioned outside of the catchment area of the chain rollers (pos. A).

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NOTE

If the COBRA 1X is not pressurized, the compression springs (pos. 1.2 and 2.3) maintain the lubrication head (pos. 1) and the pick-up arm (pos. 2) in off position.

- The lubricant supply pump is switched off.

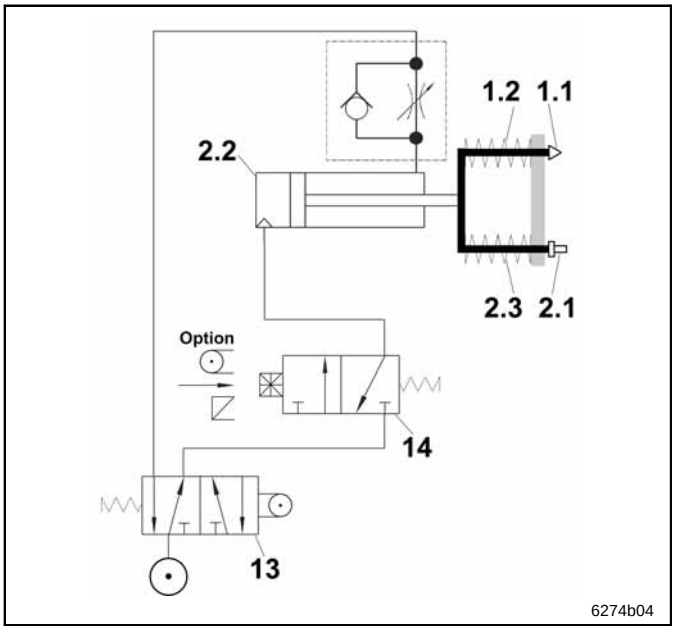

Fig. 11 Pneumatic wiring diagram in off position

1.1 - nozzle coupler
1.2 - compression spring for lubrication head
2.1 - pick-up rollers
2.2 - cylinder
2.3 - Compression spring for pick-up arm
13 - 5/2-way valve, mechanically operated
14 - 3/2-way valve, mechanically operated (option: pneumatical, electrical)
A - chain rollers

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Operating Method, continuation

Pneumatics and Mechanics, continuation

Waiting position

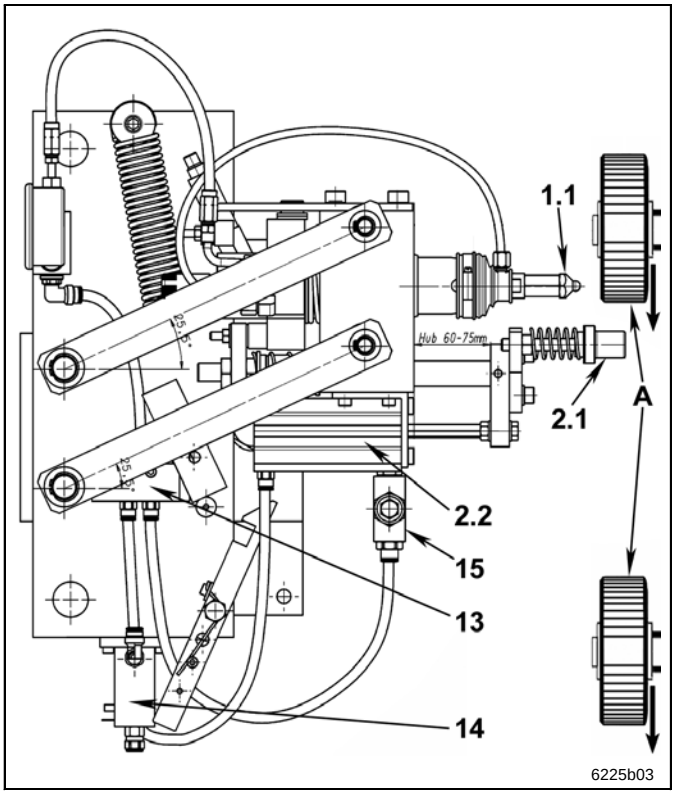

Fig. 12 COBRA 1X in waiting position

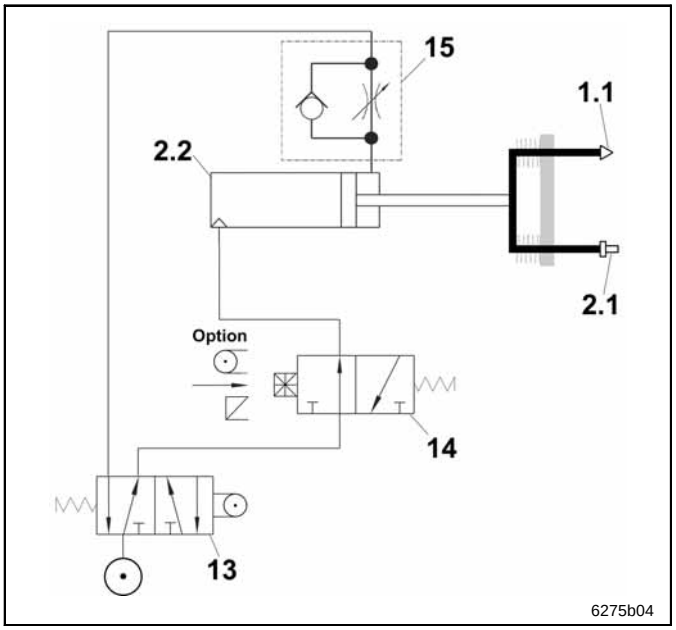

Fig. 13 Pneumatical wiring diagram in waiting position

In the waiting position the COBRA 1X is ready for operation.

Characteristics of the waiting position

- The 3/2-way valve (pos. 14) is operative.
  The 5/2-way valve (pos. 13) is operative.
  (Valve position see fig. 13).
- The cylinder (pos. 2.2) drives the lubrication head (pos. 1) and the pick-up arm (pos. 2) into the direction of the transport chain.
- The pick-up rollers (pos. 2.1) are positioned in the catchment area of the chain rollers (pos. A).

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NOTE

The extracting speed of the lubrication head (pos. 1) and the pick-up arm (pos. 2) can be adjusted on the throttle check valve (pos. 15).

1.1 - nozzle coupler
2.1 - pick-up rollers
2.2 - cylinder
13 - 5/2-way valve, mechanically operated
14 - 3/2-way valve, mechanically operated (option: pneumatical, electrical)
15 - throttle check valve
A - chain rollers

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Operating Method, continuation

Pneumatics and Mechanics, continuation

Pick-up and Lubrication Phase

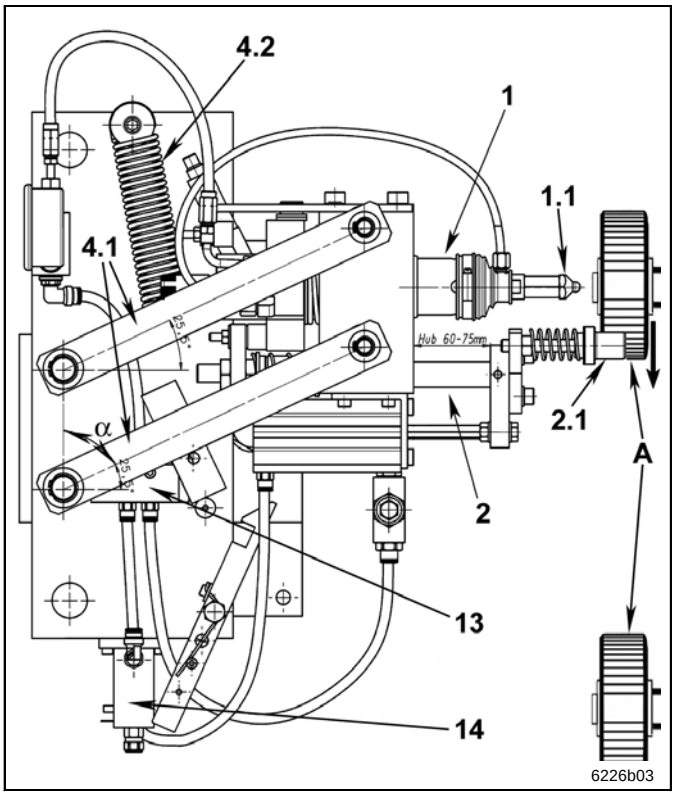

Fig. 14 COBRA 1X in pick-up phase

During the pick-up and lubrication phase the COBRA 1X is in contact with the transport chain.

Characteristics of the pick-up phase

- The valve position (pos. 13 and 14) remains like in the waiting position (see page 16).
- A chain roller (pos. A) reaches the pick-up rollers (pos. 2.1) and moves the complete slewing crank (pos. 4.1 and 4.2 with pos. 1 and 2) in the running direction of the transport chain.
- The slewing movement of the slewing cranks (pos. 4.1) increases angle α during the pick-up phase. As a consequence the pull-back spring is bended and nozzle coupler as well as pick-up rollers are moved towards the transport chain.

1.1 - flush coupler
2.1 - pick-up rollers
2.2 - cylinders
4.1 - slewing cranks
4.2 - pull-back spring
13 - 5/2-way valve
14 - 3/2-way valve, mechanically operated (options: pneumatically or electrically operated)
A - chain rollers

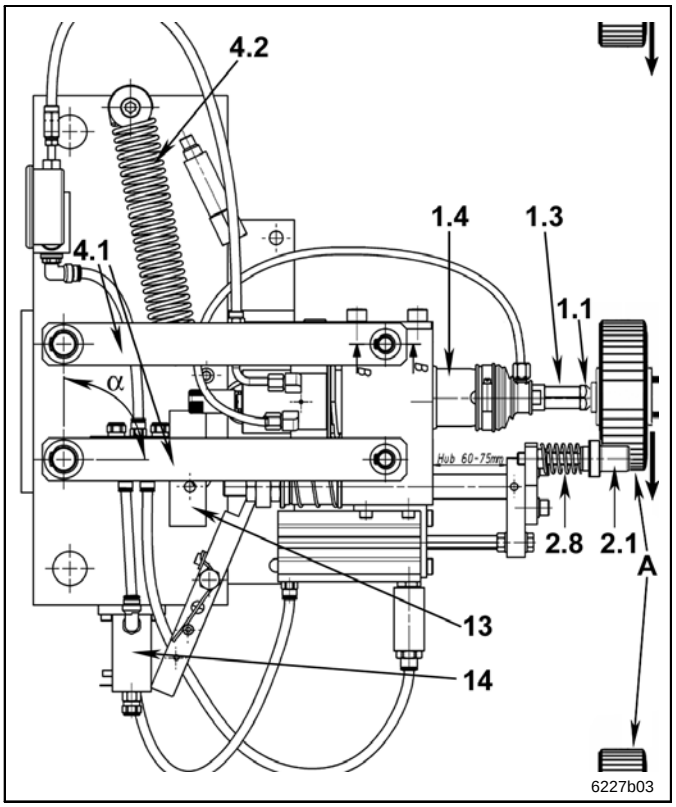

Fig. 15 COBRA 1X in the lubrication phase

During the lubrication phase the COBRA 1X dispenses lubricant to the lubrication point.

Characteristics of the lubrication phase

- The valve position (pos. 13 and 14) remains like in the waiting position (see page 16).
- The pull-back spring (pos. 4.2) is still bended.
- Nozzle coupler (pos. 1.1) and pick-up roller (pos. 2.1) move towards the transport chain.
- The nozzle coupler is pressed onto the lubrication fitting of the chain roller (pos. A).
- By doing so the lubrication head rod (pos. 1.3) is pressed into the lubrication head housing (pos. 1.4) and triggers the lubrication stroke (see page 21, chapter “Lubrication procedure“).

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NOTE

The function of the compression springs (pos. 2.8) prevents the pick-up rollers (pos. 2.1) from being damaged, even in case of a maximum approach to the chain rollers (pos. A).

1.1 - flush coupler
1.3 - lubrication head rod
1.4 - lubrication head housing
2.1 - pick-up rollers
2.8 - compression springs of the pick-up rollers
4.1 - slewing cranks
4.2 - pull-back spring
13 - 5/2-way valve
14 - 3/2-way valve, mechanically operated (options: pneumatically or electrically operated)

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Operating Method, continuation

Pneumatics and Mechanics, continuation

End of the lubrication phase

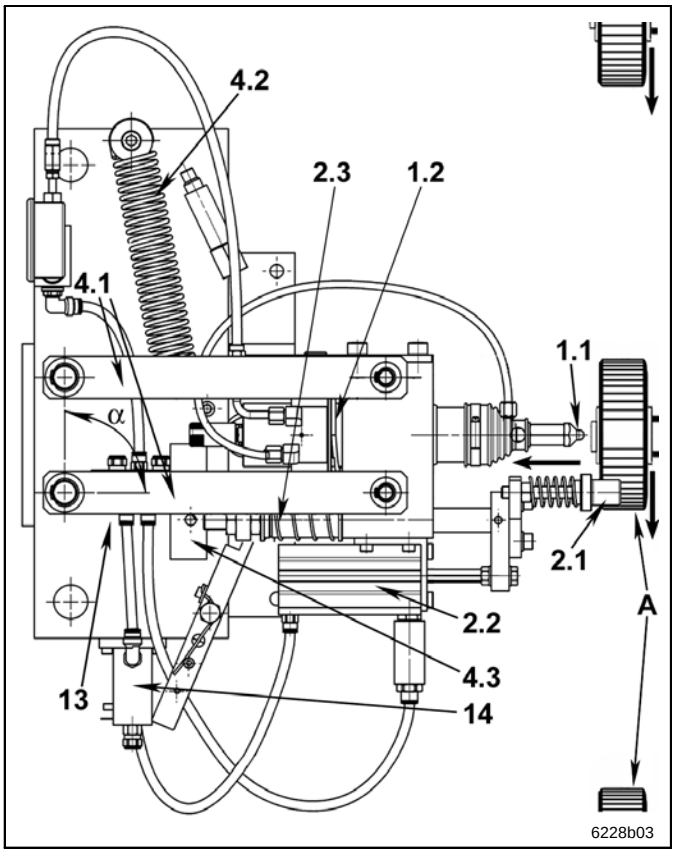

Fig. 16 COBRA 1X at the end of the lubrication procedure

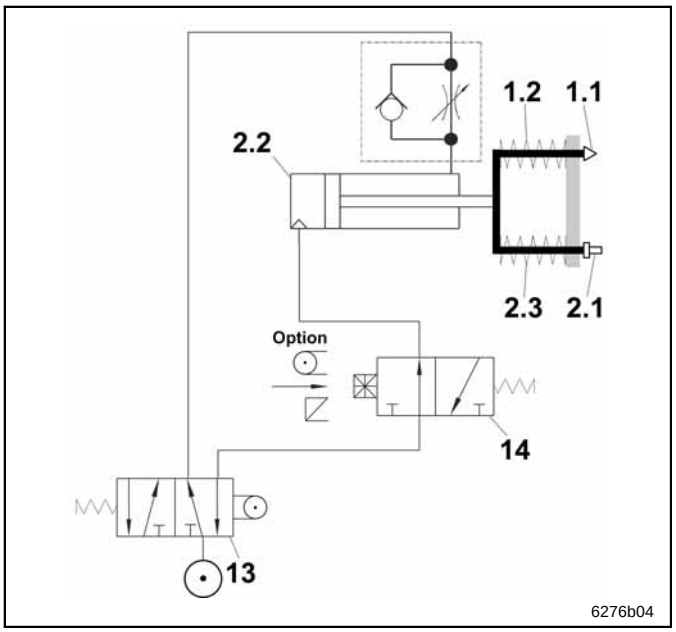

Fig. 17 Pneumatic wiring diagram at the end of the lubrication procedure

At the end of the lubrication phase the COBRA 1x is separated from the transport chain.

Characteristics at the end of the lubrication phase

- The 3/2-way valve (pos. 14) is actuated.
  The 5/2-way valve (pos. 13) is actuated by a mechanical contact on the actuating angle (pos. 4.3, valve position see fig. 17).

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NOTE

The angle α has reached its maximum value as soon as the 5/2-way valve (pos. 13) is actuated. The actuation of the 5/2-way valve is effected by adjusting the actuating angle (pos. 4.3) (see page 12, chapter "Adjustment of the slewing distance").

- Afterwards the compression springs (pos. 1.2 and 2.3) remove the lubrication head (pos. 1) and the pick-up arm (pos. 2) from the transport chain.

1.1 - nozzle coupler
2.1 - pick-up rollers
2.2 - cylinder
4.1 - slewing cranks
4.2 - pull-back spring
4.3 - actuating angle
13 - 5/2-way valve, mechanically operated
14 - 3/2-way valve, mechanically operated (options: pneumatically or electrically operated)
A - chain rollers

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Operating Method, continuation

Pneumatics and Mechanics, continuation

Pull-back movement

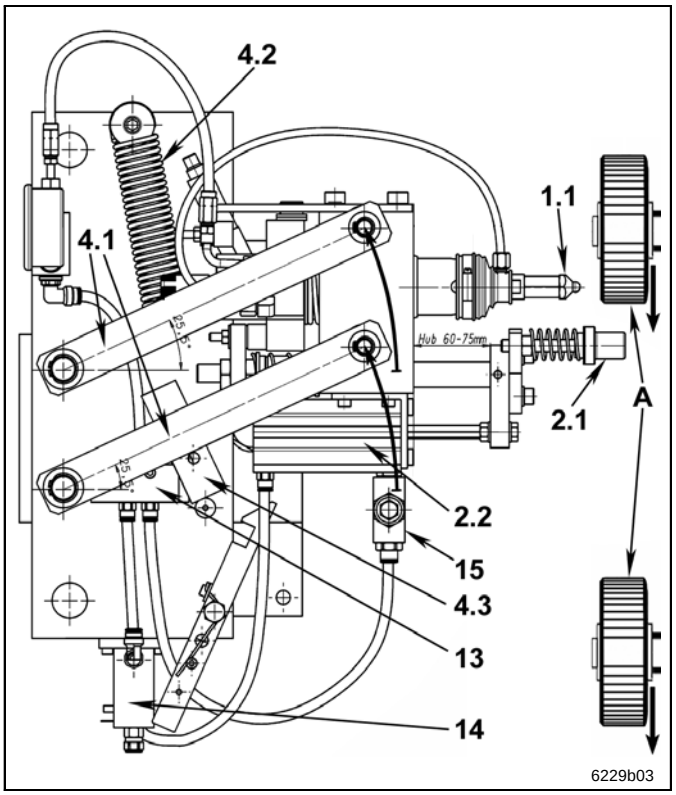

Fig. 18 COBRA 1X at the end of the pull-back movement

During the pull-back movement the COBRA 1X slews back into the waiting position.

Characteristics of the pull-back movement

- The 3/2-way valve (pos. 14) is actuated.
  The 5/2-way valve (pos. 13) looses the mechanical contact on the actuating angle (pos. 4.3; valve position, see fig. 19)

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NOTE

The extracting speed of the lubrication head (pos. 1) and of the pick-up arm (pos. 2) can be adjusted on the throttle check valve (pos. 15).

- The bended pull-back spring (pos. 4.2) pulls the slewing cranks (pos. 4.1) back into the waiting position (see page 15).
- The cylinder (pos. 2.2) moves the lubrication head (pos. 1) and the pick-up arm (pos. 2) towards the transport chain.
- The pick-up rollers (pos. 2.1) move into the catchment area of the chain rollers (pos. A) again.

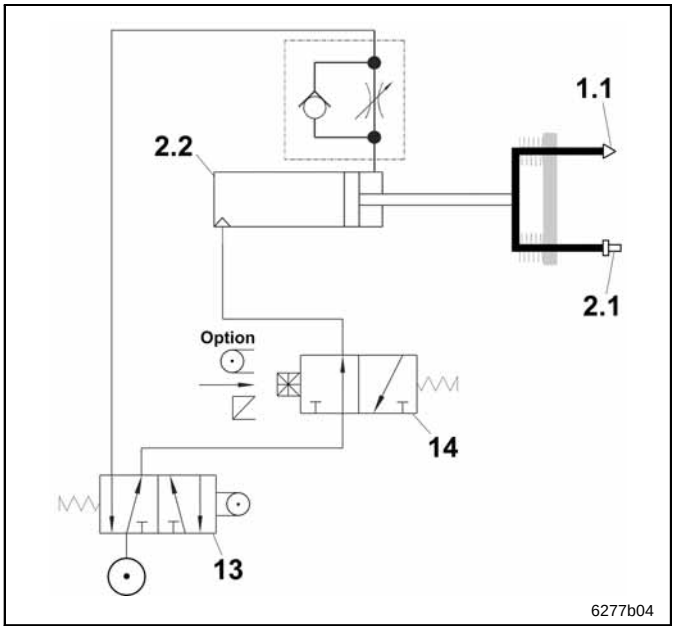

Fig. 19 Pneumatic wiring diagram at the end of the pull-back movement

1.1 - nozzle coupler
2.1 - pick-up rollers
2.2 - cylinder
4.1 - slewing cranks
4.2 - pull-back spring
4.3 - actuating angle
13 - 5/2-way valve, mechanically operated
14 - 3/2-way valve, mechanically operated (options: pneumatically or electrically operated)
15 - throttle check valve
A - chain rollers

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Operating Method, continuation

Lubricant Supply

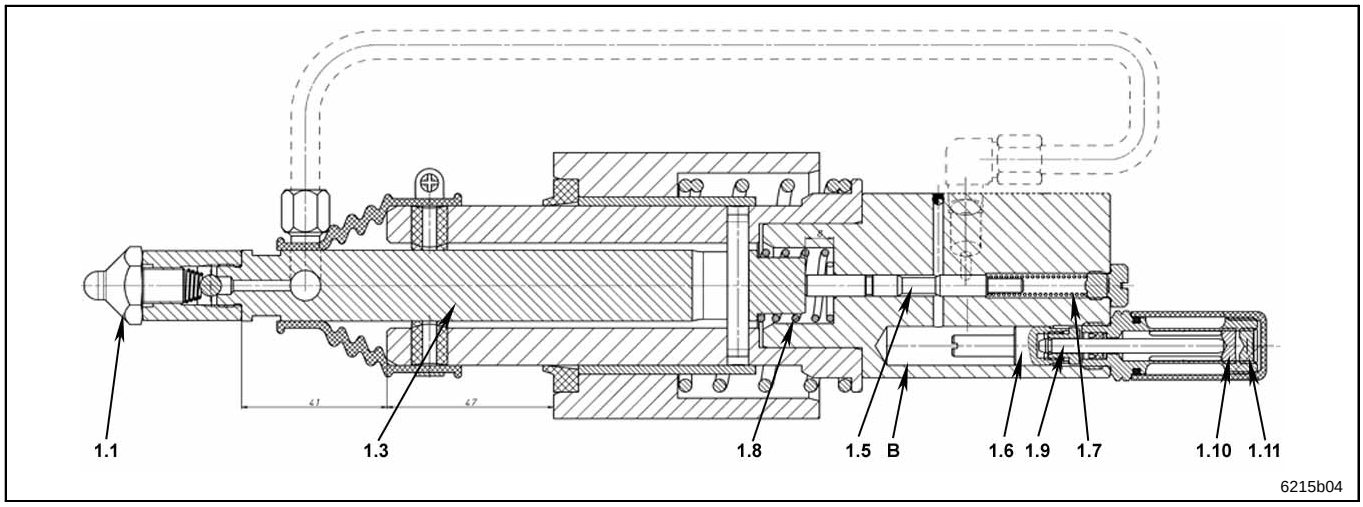

Fig. 20 Lubrication head during metering procedure

1.1 - nozzle coupler (here: flush coupler, option: coupler for hydraulic lubrication fitting)
1.3 - lubrication head rod
1.5 - control piston
1.6 - supply piston
1.7 - compression spring for control piston
1.8 - compression spring for lubrication head rod
1.9 - control pin
1.10 - metering screw
1.11 - fastening screw
A - lubrication fitting
B - metering chamber

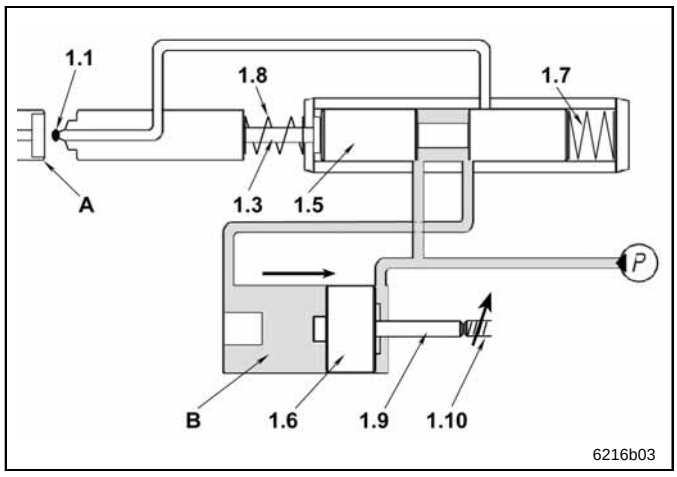

Fig. 21 Metering procedure

Lubricant lines: - white: without pressure
- light-grey: pump pressure

Metering procedure

- When the lubricant pump (pos. P) is switched on, during the metering procedure the COBRA 1X passes the following operating states:
  - End of the lubrication procedure (see page 18)
  - Pull-back movement (see page 19)
  - Waiting position (see page 16)
  - Start of the pick-up phase and lubrication phase (see page 17)
- The lubrication head rod (pos. 1.3) and the control piston (pos. 1.5) are maintained at their respective end positions by compression springs (pos. 1.7 and 1.8).
- The control piston (pos. 1.5) releases the feed line to the metering chamber (pos. B) on the left side of the supply piston (pos. 1.6) so that the pump pressure moves the supply piston (pos. 1.6) up to the metering pin (pos. 1.9).
- Turn the metering screw (pos. 1.10) in or out to adjust the output per lubrication stroke from 0.2 to 2.0 cm^3.
- Fix the position of the metering screw (pos. 1.11).

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Operating Method, continuation

Lubricant Supply, continuation

Lubrication procedure

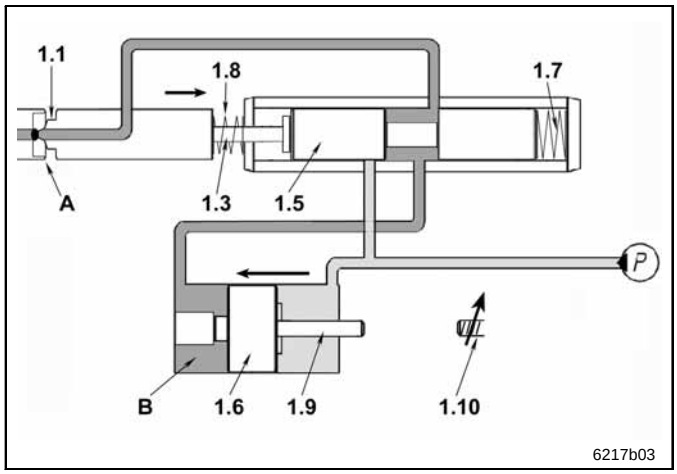

Fig. 22 Lubrication phase

1.1 - flush coupler
1.3 - lubrication head rod
1.5 - control piston
1.6 - supply piston
1.7 - compression spring for control piston
1.8 - compression spring for lubrication head rod
1.9 - control pin
1.10 - metering screw
1.11 - fastening screw
A - lubrication fitting
B - metering chamber
Lubricant lines:
- white: without pressure
- light-grey: pump pressure
- dark-grey: supply pressure

- At the end of the pick-up and lubrication phase (see pages 17 and 18) the COBRA 1X is ready for lubrication.
- The nozzle coupler (pos. 1.1) is pressed onto the lubrication fitting (pos. A) of a chain roller and moves the control piston (pos. 1.5) back.
- Thus the lubricant line towards the metering chamber is closed and the supply line towards the nozzle coupler (pos. 1) is opened.
- The output capacity of the pump (pos. P) presses the premetered output quantity to the nozzle coupler (pos. 1.1.) via the supply piston (pos. 1.6).
- At the beginning of the pull-back movement the nozzle coupler (pos. 1.1) frees itself from the lubrication fitting of the chain roller.
- The compression springs (pos. 1.6 and 1.7) press the lubrication head rod (pos. 1.3) and control piston (pos. 1.5) back into their end positions.
- Then another metering is initiated.

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IMPORTANT

The lubrication procedure is incomplete if the supply piston (pos. 1.6) could not reach its final position (see control pin, page 14, fig. 8, pos. 1.9) in time.

➲ *Reduce the output (see page 14) so that the supply stroke can be completed within the lubrication phase (see page 17).*

➲ *Shorten the lubrication pauses of the transport chain accordingly.*

Permanent operation of the COBRA 1X

(Electrical control not required)

During the comprehensive lubrication cycle of the transport chain the COBRA 1X changes exclusively between the following operating states:

1. waiting position (see page 16)
2. pick-up phase and lubrication phase (see page 17)
3. end of lubrication phase (see page 18)
4. pull-back movement (see page 19)
5. waiting position (see page 16)
6. pick-up phase and lubrication phase, etc.

Interval operation of the COBRA 1X

(Electrical control required)

If the supply speed of the transport chain exceeds the fastest lubrication cycle sequence of the COBRA 1X, only every second or third chain roller must be lubricated. This results in the following cycle of operating states:

1. off position (see page 15)
2. waiting position (see page 16)
3. pick-up phase and lubrication phase (see page 17)
4. end of lubrication phase (see page 18)
5. pull-back movement (see page 19)
6. waiting position (see page 16)
7. off position (see page 15)
8. waiting position, etc.

The duration of the off positions must be actuated by means of an external control via the 3/2-way valve (pos. 14).

Depending on the adjustment of the actuating angle (see page 13, fig. 7, pos. 4.3), the throttle check valve (pos. 15) and the control sensory mechanism every sixth operating state (6. = waiting position) can be suppressed.

Termination of readiness for operation

- When switching off the air supply via the 3/2-way valve the COBRA 1X changes into the off position (see page 15).
- Thereby the compression springs (pos. 1.2 and 2.3) remove the lubrication head (pos. 1) and the pick-up arm from the transport chain.
- The pick-up rollers (see page 19, pos. 2.1) are out of the catchment area of the chain rollers (see page 19, fig. 18, pos. A).

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Maintenance, Repair and Functional Tests

Maintenance

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NOTE

Whenever work is performed on the centralized lubrication system, special attention should be paid to absolute cleanliness. Dirt will cause failure of the system.

IMPORTANT

To clean the system, use petroleum spirit or petroleum. Do not use Tri, Per or similar solvents or polar or organic solvents such as alcohol, methanol, acetone, etc.

➲ Protect the COBRA 1X against serious contamination, excessive influence of liquids or humidity and falling objects.

➲ Lubricate the sliding surfaces of the COBRA 1X at the latest after 50,000 lubrication strokes or at least five times a year.

- Sliding surfaces are found:
  on the lubrication head (page 29, pos. 1)
  on the pick-up arm (pos. 2)
  on the bearings of the slewing cranks (pos. 4.1)
- For this purpose use commercial machine oil for sliding surfaces.
- Differentiate between the friction pairings steel-steel and steel-plastic.

Repairs

- For repair works on the lubrication device use only original Lincoln spare parts.
- In case of warranty or for bigger repairs, send the lubrication device to the manufacturer.
- Contact:
  See rear side of this User Manual.

Functional Test

When lubrication is active (see pages 15 to 20):

- During the pull-back movement (see page 19) a short drop in pressure can be stated on the pressure gauge of the lubricant supply.
- The functioning of the COBRA X1 can be controlled via the movement of the metering pin (see page 20, pos. 1.9).

➲ Check whether the nozzle coupler (see page 20, pos. 1.1.) contacts the lubrication fitting centrically. Make sure that no lubricant leaks out during the lubrication phase (see page 17).

➲ Carry out a spot check to verify the proper condition of the lubrication fittings on the transport chain.

Troubleshooting

Fault: No or insufficient lubricant supply

Cause:	Remedy:
· Metering of lubricant is set to zero or too little supply value	➲ Verify adjustment of output and correct if necessary (see page 14, item 7).
· Lubricant inlet pressure too low (see pages 26 and 27, fig. 23 and 24, pos. 3)	➲ Check the function of the pump; if necessary, increase pump pressure (see page 25, chapter “Technical Data”).
· Distance from the lubrication head (pos. 1) to the lubrication fitting on the chain roller is too big	➲ Control mounting position of the COBRA 1X (see page 11 and 12, item 1 to 4).
· Slewing distance of the slewing cranks (pos. 4.1) is too short	➲ Verify adjustments and correct if necessary (see page 13, item 5).
· The pick-up roller pushes (pos. 2.1) the chain roller off the lubrication head (pos. 1)	➲ Check adjustment of pick-up stroke and correct if necessary (see page 12, chapter “Adjust pick-up stroke“).

(Indications of positions without reference to figure or page refer to chapter “Components and Kits”, see page 28 ff)

Subject to modifications

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Troubleshooting, continuation

Fault: Lubrication head (pos. 1) and pick-up arm (pos. 2) do not move into waiting position (see page 15)

Cause:	Remedy:
· 3/2-way valve (pos. 14) does not actuate	➲ Check air connections, and for the version with electrically operated 3/2-way valve (pos. 14) also check the electrical connections.
·	➲ Check the functioning of the valve and replace 3/2-way valve (pos. 14) if necessary.
·	➲ For the version with drive via chain sensor: Check the functioning of the proximity switch “chain sensor” and its electrical connections to the 3/2-way valve (pos. 14).
· 5/2-way valve (pos. 13) does not switch to waiting position	➲ Verify mounting position of the 5/2-way valve (pos. 13) and the actuating angle (pos. 4.3) and correct if necessary (page 13, item 5).
·	➲ Check the functioning of the valve and replace 5/2-way valve (pos. 13) if necessary.
· Throttle check valve (pos. 15) clogged	➲ Verify the functioning of the throttle check valve (pos. 15) by unscrewing the throttle screw; replace throttle check valve if necessary.
· Cylinder (pos. 2.2) does not extract	➲ Check the functioning of the cylinder, air pressure and air connections; if necessary replace cylinder (pos. 2.2).
· Mechanical connection interrupted between cylinder (pos. 2.2) and lubrication head (pos. 1) and/ or pick-up arm (pos. 2)	➲ Verify mechanical connections.

Fault: Pick-up rollers (pos. 2.1) do not go deep enough or too deep into the catchment area of the chain rollers

Cause:	Remedy:
· Wrong COBRA 1X mounting position	➲ Check COBRA 1X mounting position and correct if necessary (see pages 11 and 12, items 1 to 4).
· Pick-up stroke initiated by the cylinder (pos. 2.2) is wrong	➲ Verify adjustment of pick-up stroke (see page 12, chapter “Adjust pick-up stroke”).

Fault: Nozzle coupler (pos. 1.1) does not hit the lubrication fitting of the chain roller

Cause:	Remedy
· Wrong COBRA 1X mounting position	➲ Check the COBRA 1X mounting position and correct if necessary (see pages 11 and 12, items 1 to 4).
· Wrong distance between pick-up rollers (pos. 2.1) and lubrication head (pos. 1)	➲ Correct distance by adjusting the pick-up arm (pos. 2.6; see page 12, “Adjust distance nozzle coupler – pick-up rollers).
· Lubrication fitting is not positioned in the center of the chain roller	➲ Make sure to adjust the chain roller accordingly.
· Chain rollers have different diameters	➲ The transport chain must be equipped with chain rollers of equal diameters by the user of the system.

(Indications of positions without reference to figure or page refer to chapter “Components and Kits”, see page 28 ff)

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Troubleshooting, continuation

Fault: Lubricant leaks out between the nozzle coupler (pos. 1.1) on the lubrication head (pos. 1) and the lubrication fitting on the chain roller

Cause:	Remedy:
· The nozzle coupler (pos. 1.1) does not hit the lubrication fitting of the chain roller in its center	➲ See fault “Nozzle coupler (pos. 1.1) does not hit the lubrication fitting of the chain roller“.
· Pressure force of the nozzle coupler (pos. 1.1) to the lubrication fitting of the chain roller is too little	➲ Check inlet pressure and correct if necessary (see page 25, chapter “Technical Data“).
· Lubrication fitting of the chain roller is damaged and/ or clogged	➲ The user must ensure to bring the lubrication fittings into full working order.

Fault: Pick-up rollers (pos. 2.1) don’t go into the catchment area of the transport chain right before each chain roller

Cause:	Remedy:
· Moving procedure too slow	➲ Verify inlet pressure and correct if necessary (see page 25, chapter “Technical Data”).
	➲ Increase reverse travel speed (see page 13, item 6).
	➲ Reduce swiveling distance of the slewing cranks (pos. 4.1; see page 13, item 5).

Fault: Slewing cranks (pos. 4.1) go into the safety notch (pos. 5)

Cause:	Remedy:
· Swiveling distance of the slewing cranks (pos. 4.1) is too big	➲ Reduce swiveling distance of the slewing cranks (pos. 4.1; see page 13, item 5).

Fault: COBRA swivels against the proposed supply direction of the transport chain (see pos. 7 and 8)

Cause:	Remedy:
· Wrong chain running direction	➲ The user of the system must ensure the correct chain running direction.

Fault: COBRA swivels in the proposed supply direction of the transport chain (see pos. 7 and 8)

Cause:	Remedy:
· Slewing cranks (pos. 4.1) engaged in the safety notch (pos. 5) · 5/2-way valve (pos. 13) does not actuate	➲ Check the actuating angle (pos. 4.3) as well as position and function of the 5/2-way valve (pos. 13): if the slewing cranks (pos. 4.1) are positioned in the safety notch (pos. 5), the 5/2-way valve (pos. 13) must actuate reliably.

Fault: Lubricant leaks from the relief valve (pos. 16)

Cause:	Remedy:
· Pump pressure is too high	➲ Adjust pump pressure (see page 24, chapter “Technical Data”).
· Relief valve (pos. 16) defective or contaminated	➲ Replace relief valve (pos. 16).

(Indications of positions without reference to figure or page refer to chapter “Components and Kits”, see page 28 ff)

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Technical Data

COBRA 1X

6001a02

NOTE
An operation of the COBRA 1X is admissible only with oiled air.

Air connection ..... G 3/8
Lubricant connection ..... G 3/8
Inlet air pressure ..... 5.5 to 6 bar
Inlet lubricant pressure:
- for grease ..... 120 to 240 bar
- for oil ..... 40 to 80 bar

6001a02

NOTE
Opening pressure of the relief valve on the lubricant inlet: 270 bar +5% / -10%

Cylinder stroke (pos. 2.2)
..... infinitely variable from 60 to 75 mm
- pick-up stroke ..... infinitely variable from 60 to 75 mm
- lubrication head stroke ..... 26.5 mm

Factory-set stroke of the slewing cranks in
the direction of the transport chain ..... 27 mm

6001a02

NOTE
Adjustment possible by modifying the mounting position of the dashpot (pos. 4.6)

Control stroke of the lubrication head rod (pos. 1.3) into the lubrication head housing (pos. 1.4) ..... 8 mm

Output [1] ..... infinitely variable 0.2 to 2.0 cm³/stroke
Lubricant [1]
- Grease ..... NLGI grade 2
- Lubrication oil ..... min. 40 mm²/s (cST) at 40 °C
Operating temperature ..... 0 to + 60 °C
Max. stroke frequency ..... 1 lube cycle/ second

$$stroke \quad frequency = \frac{chain \quad speed}{chain \quad pitch}$$

Max. chain speed [1] ..... 0,4 m/s

[1] The output depends on the chain speed and on the kind of lubricant.

Max. admissible excursion of the lubrication fitting
- horizontal ..... ± 5 mm
- vertical ..... ± 1.5 mm

Weight of the lubrication device ..... 26 kg
Sound level ..... < 70 dB/A

Data for electrically operated 3/2-way valve (option)
- Supply voltage ..... 24 VDC ± 10 %
- Power consumption
  (without control or additional equipment) ..... 10 W
- Type of protection with mounted plug DIN 43650 ..... IP 65

Subject to modifications

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Technical Data, continuation

Dimensions, Installation from the top

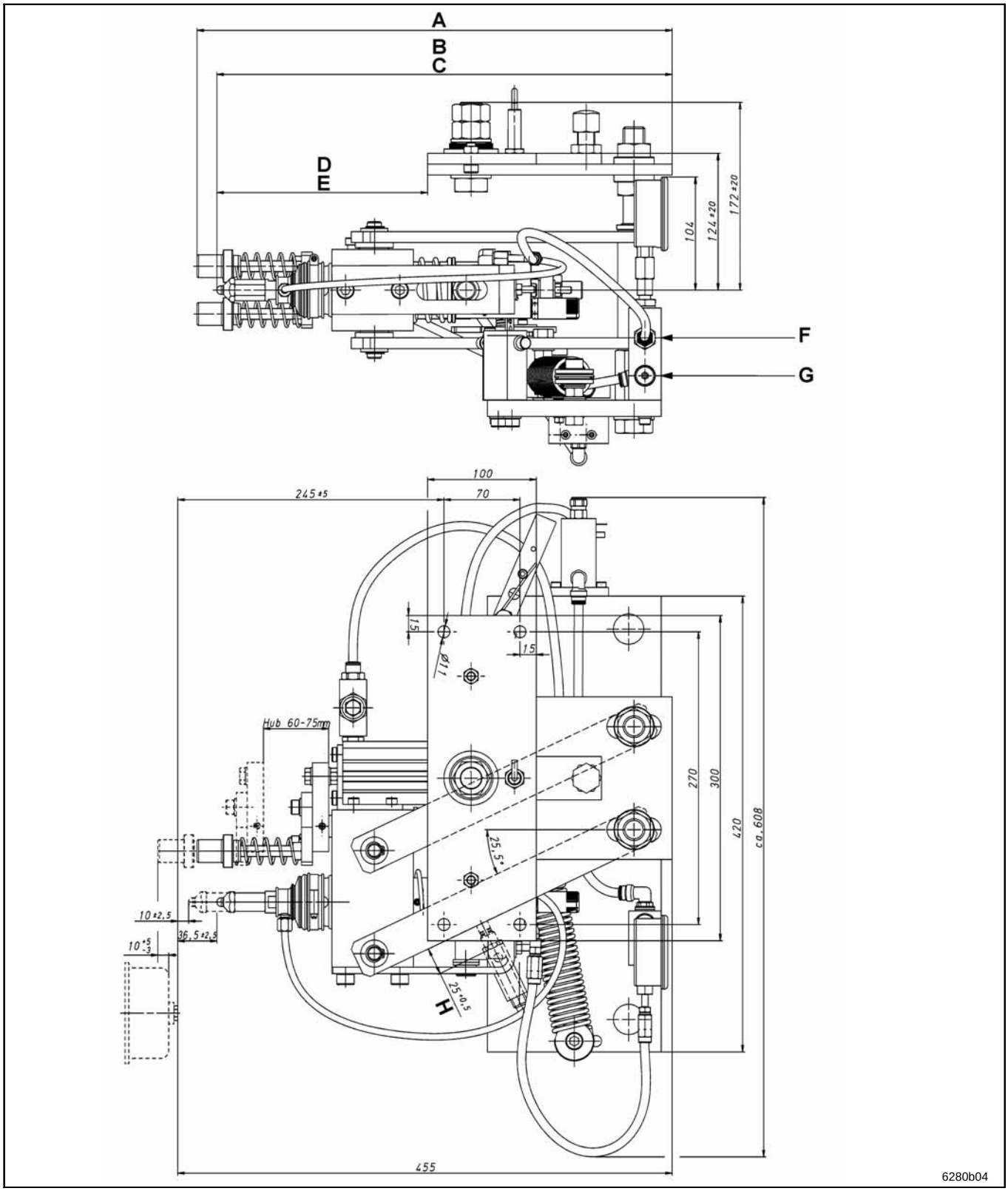

Fig. 23 View in off-position, installation from the top

A -	Customized	**B** -	419 mm in off-position	**D** -	194 mm in off-position	**F** -	Lubricant inlet G 3/8
H -	Dashpot retracted	**C** -	445.5 mm in waiting position	**E** -	220.5 mm in waiting position	**G** -	Air inlet G 3/8

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Technical Data, continuation

Dimensions, Installation from the bottom

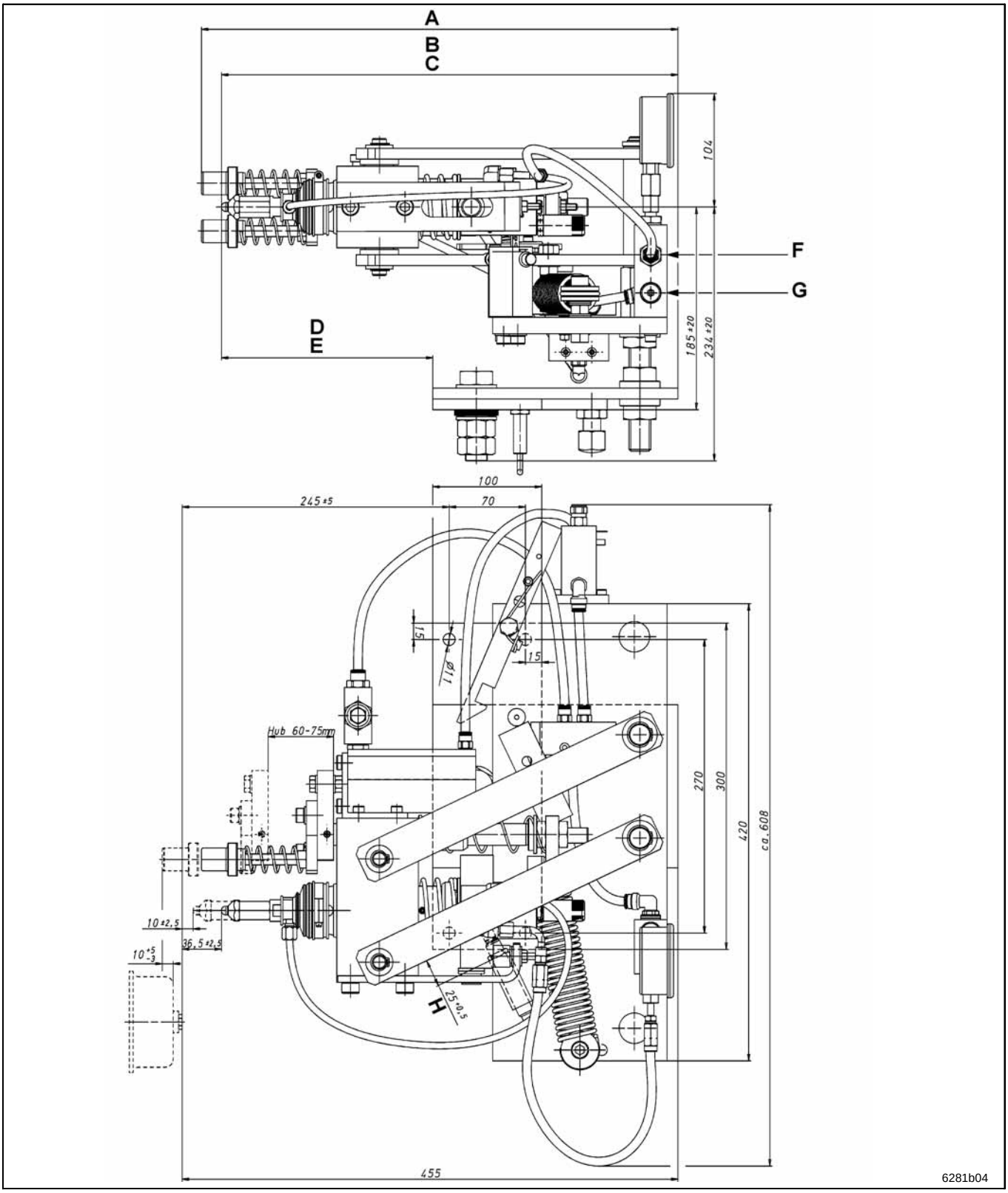

Fig. 24 View in off-position, installation from the bottom

A -	Customized	**B** -	419 mm in off-position	**D** -	194 mm in off-position	**F** -	Lubricant inlet G 3/8
H -	Dashpot retracted	**C** -	445.5 mm in waiting position	**E** -	220.5 mm in waiting position	**G** -	Air inlet G 3/8

Subject to modifications

Components and Kits

COBRA 1X in off-position, installation from the bottom

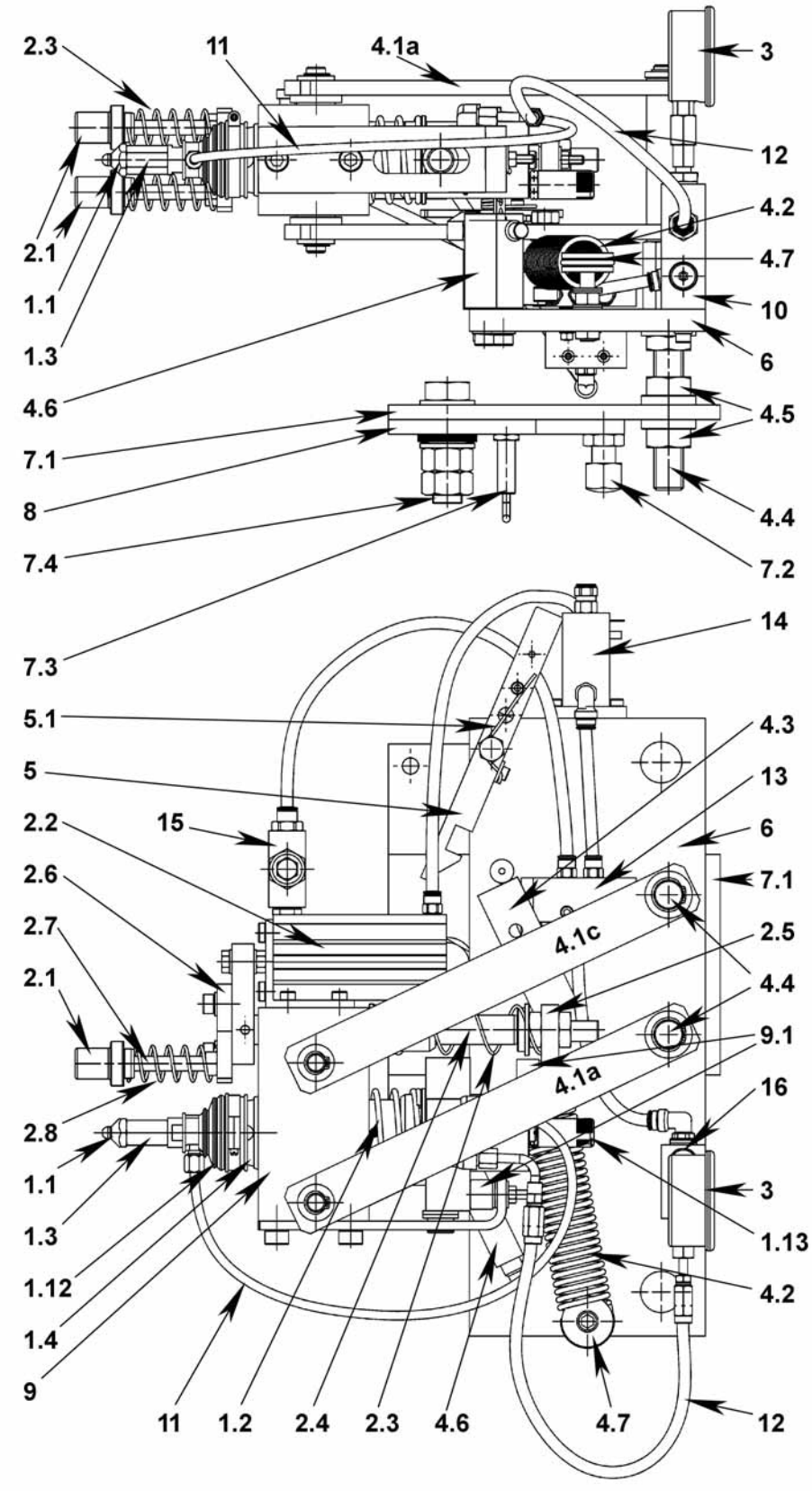

Fig. 25 COBRA 1X in off-position, installation from the bottom

Subject to modifications

Components and Kits, continuation

Parts List

Item	Description	Qty.	Part No.
1	Lubrication head assy. - version flush coupler - version: nozzle for hydraulic lubrication fitting	1	 581-32591-1 581-32610-1
1.1	Flush coupler, Option: nozzle for hydraulic lubrication fitting	1	581-32591-1 581-32609-1
1.2	Compression spring for lubrication head	1	218-70204-9
1.3	Lubrication head rod	1	[1]
1.4	Lubrication head housing	1	[1]
1.5	Control piston	1	[1]
1.6	Supply piston	1	[1]
1.7	Compression spring for control piston	1	[1]
1.8	Compression spring for lubrication head rod	1	[1]
1.9	Metering pin	1	[1]
1.10	Metering screw	1	[2]
1.11	Fastening screw	1	[2]
1.12	Bellows	1	481-70497-1
1.13	Protective cap for metering device	1	420-24818-1
1.14	Metering device assy.	1	520-34011-1
2	Pick-up arm assy.	1	[3]
2.1	Pick-up roller	1	gem. Auftrag
2.2	Cylinder	1	253-10321-1
2.3	Compression spring for pick-up	1	218-10204-8
2.4	Guide bar for pick-up	1	[3]
2.5	Stop for pick-up	1	[3]
2.6	Pick-up arm	1	gem. Auftrag
2.7	Pick-up bolt	1	gem. Auftrag
2.8	Compression spring for pick-up	1	gem. Auftrag
3	Pressure gauge	1	234-13132-7
4.1	Slewing crank assy.		↓
4.1a	Slewing crank, lubrication head side, bottom installation	1	581-32598-1
4.1b	Slewing crank, lubrication head side, top installation	1	581-32599-1
4.1c	Slewing crank, pick-up side, bottom installation	1	581-32596-1
4.1d	Slewing crank, pick-up side, top installation	1	581-32597-1

Item	Description	Qty.	Part No.
4.2	Pull-back spring	1	218-10312-1
4.3	Actuating angle	1	481-70535-1
4.4	Threaded rod M20	2	[4]
4.5	Nut M20	4	207-14176-2
4.6	Dashpot	1	233-10051-1
4.7	Pull-back spring bearing roller	1	481-70560-1
5	Safety notch	1	481-70551-1
5.1	Leg spring	1	300-17322-1
6	Base plate	1	481-70554-1
7	Slewing device with mounting plate	1	681-29329-1
7.1	Slewing plate	1	[5]
7.2	Thrust piece	1	[5]
7.3	Proximity switch (option)	1	234-13134-3
7.4	Slewing axis	1	[5]
8	Mounting plate	1	[5]
9	Pick-up and lubrication head bearing assy.	1	581-32593-1
9.1	Rubber damper	2	233-13073-7
10	Connecting block assy.	1	581-32608-1
11	Pressure line, lubrication head, outlet	1	666-36998-2
12	Pressure line, lubrication head inlet	1	666-36998-2
13	5/2-way valve, mechanically operated	1	235-10311-1
14.1	3/2-Wegeventil, mechanically operated	1	253-10322-1
14.2	3/2-way valve, electrically operated (optional to 14.1)	1	253-10322-2
15	Check-valve	1	253-14262-7
16	Relief valve	1	235-14343-2

[1] Included in kit item 1
[2] Included in kit item 1.14
[3] Included in kit item 9
[4] Included in kit item 4.1
[5] Included in kit item 7

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Note:

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6.3A-18003-A04

Herstellererklärung im Sinne der EG-Richtlinie Maschinen 89/37/EG, Anhang II B

Hiermit erklären wir, dass die

COBRA 1X

in der von uns gelieferten Ausführung zum Einbau in eine Maschine bestimmt ist und dass ihre Inbetriebnahme solange untersagt ist, bis festgestellt wurde, dass die Maschine, in die diese Pumpe eingebaut werden soll, den Bestimmungen der o.g. Richtlinie einschließlich deren zum Zeitpunkt der Erklärung geltenden Änderungen entspricht.

Angewendete harmonisierte Normen insbesondere:

EN 292-1	Sicherheit von Maschinen Teil 1 Grundsätzliche Terminologie, Methodik
EN 292-2	Sicherheit von Maschinen Teil 2 Technische Leitsätze und Spezifikationen
EN 809	Pumpen und Pumpengeräte für Flüssigkeiten, Sicherungstechnische Anforderungen
EN 60204-1	Sicherheit von Maschinen Elektrische Ausrüstung von Maschinen Teil 1: Allgemeine Anforderungen

Walldorf, 21.05.2004 , Dr. Ing. Z. Paluncic

Manufacturer's declaration of conformity as defined by the EC machinery directive 98/37/EC, Annex II B

Herewith we declare that the supplied model of the

COBRA 1X

is intended to be incorporated into machinery covered by this directive and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the above mentioned directive including all modifications of this directive valid at the time of the declaration.

Applied harmonized standards in particular:

EN 292-1	Safety of machinery part 1 Basic terminology, methodology
EN 292-2	Safety of machinery part 2 Technical principles and specifications
EN 809	Pumps and pump units for liquids, Safety requirements
EN 60204-1	Safety of machinery Electrical equipment of machinery Part 1: General requirements

Walldorf, May 05, 2004, Dr. Ing. Z. Paluncic

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